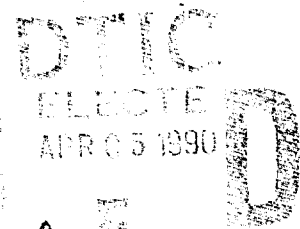
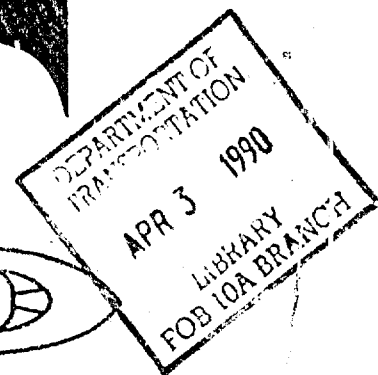
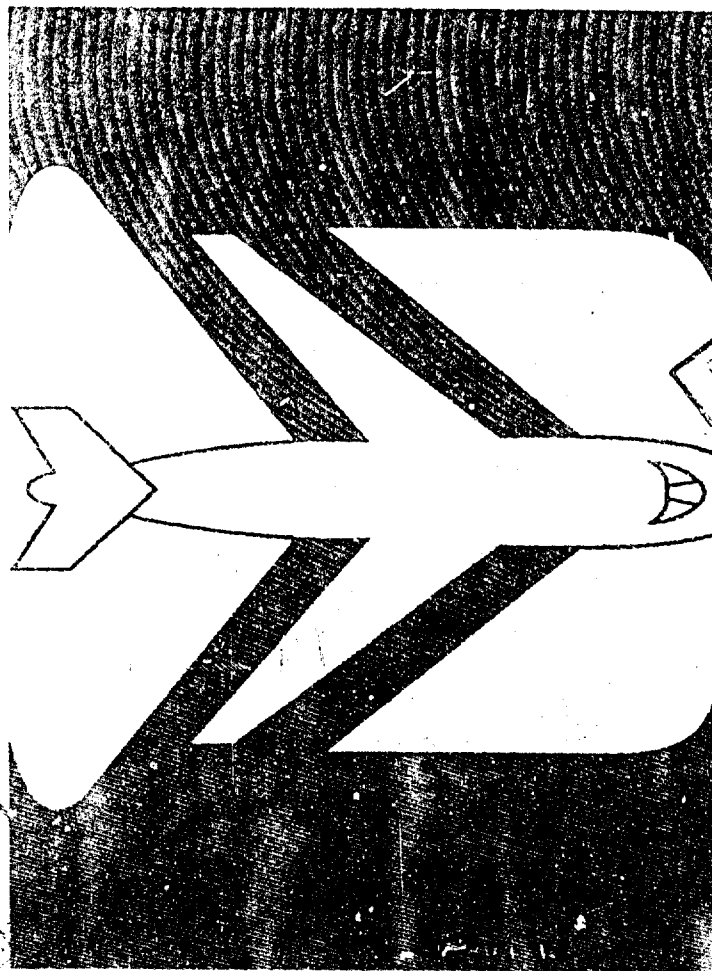


General Aviation Activity and Avionics Survey

Calendar Year 1988

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General Aviation Activity and Avionics Survey

Calendar Year 1988

Accession For	
NTIS GPA&I	<input checked="" type="checkbox"/>
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Availability is unlimited. Document may be released to the National Technical Information Service Springfield, Virginia 22161, for sale to the public.

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY Annual Summary Report 1988 Data		5. Report Date 1988	6. Performing Organization Code AMS-420
		8. Performing Organization Report No.	
		7. Author(s)	
9. Performing Organization Name and Address Federal Aviation Administration Office of Management Systems 800 Independence Avenue, S.W. Washington, D.C. 20591		10. Work Unit No. (TRAIS)	11. Contract or Grant No.
		13. Type of Report and Period Covered Annual Calendar Year 1988	
		14. Sponsoring Agency Code	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration 800 Independence Avenue, S.W. Washington, D.C. 20591			
15. Supplementary Notes			
16. Abstract This report presents the results of the annual General Aviation Activity and Avionics Survey. The survey is conducted by the FAA to obtain information on the activity and avionics of the United States registered general aviation aircraft fleet. The report contains breakdowns of active aircraft, annual flight hours, average flight hours and other statistics by manufacturer/model group, aircraft type, state and region of based aircraft, and primary use. Also included are fuel consumption, lifetime airframe hours, avionics, engine hours, and miles flown estimates, tables for detailed analysis of the avionics capabilities of the general aviation fleet, estimates of the number of landings, IFR hours flown, and grade of fuel consumed by the GA fleet. (KR) ←			
17. Key Words Aircraft, Aircraft Activity, Aircraft Use, Avionics, Fuel Consumption, General Aviation, Hours Flown, Miles Flown		18. Distribution Statement DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 290	22. Price

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FAA Statistical Handbook of Aviation is a convenient source for historical data. It presents statistical information pertaining to the Federal Aviation Administration, the National Airspace System, Airports, Airport Activity, U. S. Civil Air Carrier Fleet, U.S. Civil Air Carrier Operating Data, Airmen, General Aviation Aircraft, Aircraft Accidents, Aeronautical Production and Import/Export.

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Person to contact:	Patricia Beardsley
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Date 1989 information is available:	February 1990
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General Aviation Activity and Avionics Survey publication presents the results of the general aviation activity and avionics survey conducted to obtain information on the activity and avionics of the U.S. registered general aviation aircraft fleet. The survey reveals estimated flying time of the active general aviation aircraft and other statistics by manufacturer/model group, aircraft type, state and region of based aircraft, and primary use. Estimates are included on fuel consumption, lifetime airframe hours, avionics, and engine hours.

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FAA Directory is published twice a year and contains six sections of data: Washington/Region/Center headquarters' managers; field facilities' managers/supervisors; regional area maps/organizational charts; alphabetical listing; special interest groups; and glossary.

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Airport Activity Statistics of Certificated Route Air Carriers is a joint publication of the Federal Aviation Administration (FAA) and the Research and Special Programs Administration (RSPA). RSPA furnishes airport activity data on certificated route air carriers; FAA organizes/publishes it. Included in the data are passenger enplanements, tons of enplaned freight, express and mail. Both scheduled/nonscheduled service and domestic/international operations

shown by airport and carrier are also included. Breakdown of data includes departures/enplanements/cargo/mail by airport, carrier and type of operation, and type of aircraft.

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Date 1988 information will be available:	September 1989
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Date next publication is available:	November 1989 (1988 Data)
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PREFACE

This report presents the results of the 1988 General Aviation Activity and Avionics (GAAA) Survey. It is prepared by the Statistical Analysis Branch, Management Standards and Statistics Division, Office of Management Systems (AMS-420).

The report's layout differs from previous years' surveys in that it is divided into eight, easy-to-read chapters. Each chapter contains its corresponding tables and figures. The figures are presented first with the tables following the figures. Appendix A presents a conversion table from last year's listings of tables and figures to this year's format.

Chapter I, **Introduction**, briefly discusses the purpose, background and scope of the General Aviation Activity and Avionics Survey Report. It also highlights the important findings of the survey.

Chapter II, **Common General Aviation Activity Measures**, presents information on the general aviation population size, the number of active aircraft, total hours flown and average hours flown. Statistics on another measurement of general aviation activity, number of landings, are also given by total, local flight and cross-country flight.

Chapter III, **Primary Use**, looks at the growth in the number of active aircraft and in the total number of hours flown by the general aviation fleet. The major uses of the general aviation aircraft and the number of nautical miles flown by primary use are also looked at in detail.

Chapter IV, **Flying Conditions**, presents statistics on the conditions under which the general aviation population flies. Detailed statistics on the number of hours flown under Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC) during day and night are given.

Chapter V, **Fuel Consumption**, gives information on the types of fuel consumed, the amount used, and average fuel consumption.

Chapter VI, **Airframe Hours and Engine Activity**, provides data on the age of the general aviation fleet--average airframe hours per active aircraft and the number of engines and average hours per engine.

Chapter VII, **Avionics**, presents various figures and tables on selected avionics capabilities of the general aviation aircraft fleet.

Chapter VIII, **National Airspace System (NAS) Capability Groups Based on Avionics**, provides numerous figures and tables on aircraft avionic capabilities by the two classifications of capability groups, hierarchical and non-hierarchical. These two groups were developed to provide a framework for relating airborne avionics equipment (discussed in Chapter VII) to aircraft capability to perform in the NAS.

Appendix A presents a conversion table from last year's listings of tables and figures to this year's format. Appendix B details the methodology of the survey and includes a definition and explanation of "standard error," a statistical measure reported in each table. Appendix C and Appendix D list SDR aircraft group name and FAA Manufacturer/Model Codes, and SDR Engine Group Name and FAA Manufacturer/Model Codes, respectively. Appendix E contains a list of common acronyms, as well as a glossary of aviation terms found in this report.

Suggestions and comments about this report are welcome and will be given careful consideration in planning future editions.

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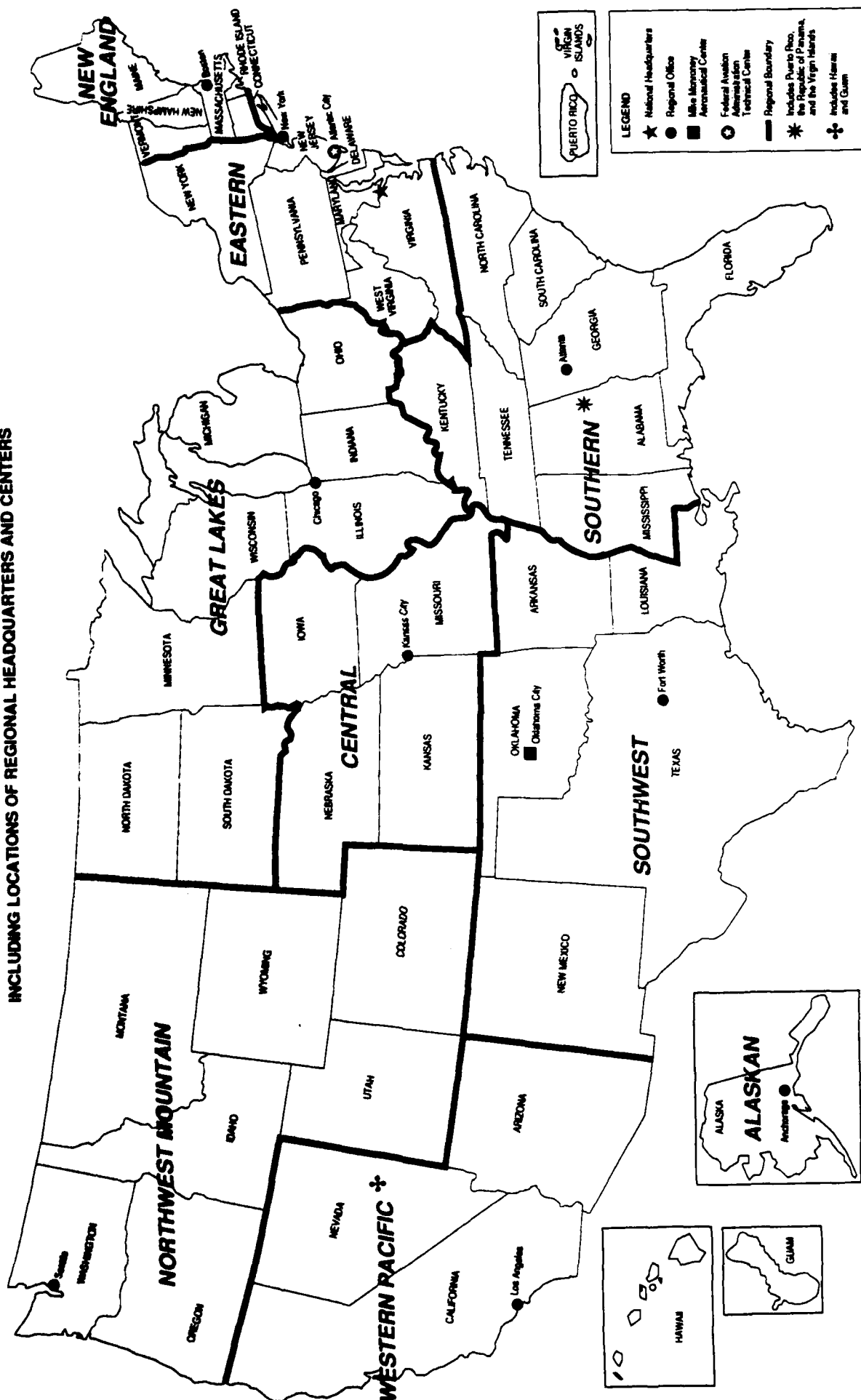
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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FAA REGIONAL BOUNDARIES

INCLUDING LOCATIONS OF REGIONAL HEADQUARTERS AND CENTERS



CHAPTER I

INTRODUCTION

This report presents the results of the annual General Aviation Activity and Avionics Survey for 1988. The survey provides information about the activities and avionics equipment of the general aviation aircraft fleet. The information obtained from the survey enables the FAA to monitor the general aviation fleet so that FAA can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to assure the safe operation of all aircraft in the airspace.

The term "general aviation" is not always defined in the same way from aviation publication to aviation publication. For the purposes of this survey, the term "general aviation" excludes what is commonly known as the "airlines." The general aviation aircraft represented in this report, then, range in complexity from simple gliders and balloons to the more sophisticated four engine turbojets. These aircraft are used for a variety of purposes such as air taxi, agricultural, business, personal, research, instructional, recreational, and even sport fishing--to name a few.

Each year, the information for the survey is collected using a statistically designed sample survey. The sampled aircraft represent every state and FAA region and all of the major manufacturer/model groups of aircraft. Appendix A of this report provides a detailed description of the survey, its history, and the survey sample design.

Following are some of the significant survey findings for 1988:

GENERAL:

- o The estimated 210,000 active general aviation aircraft in the fleet flew more than 33.5 million hours in 1988, with an average annual flight time per aircraft close to 154 hours. These active aircraft represent approximately 81 percent of the registered general aviation fleet.
- o From 1987 to 1988, the number of active aircraft in the general aviation fleet decreased three percent while flying time increased only 4 tenths of one percent. The average hours flown per aircraft thus increased approximately 3.5 percent over 1987's comparable figures.

- o The general aviation active aircraft undertook more than 96 million operations (takeoffs and landings). About 65 percent were in local flight (versus cross-country).
- o The general aviation aircraft fleet flew more than 4.1 billion nautical miles during 1987.
- o Approximately 79 percent of the total hours were flown in visual meteorological conditions (VMC) during the day, and 10 percent VMC during the night. Eight percent of the total hours were flown under instrument meteorological conditions (IMC) during the day, while IMC flight during the night accounted for only 3 percent of the total hours flown.
- o An estimated 1.1 billion gallons of fuel were consumed by the active general aviation fleet during 1988: 398 million gallons of aviation gasoline and 746 million gallons of jet fuel.
- o Almost 41 percent of the active general aviation fleet flew by instrument flight rules (IFR) during 1988.

GEOGRAPHIC:

- o The three regions with the greatest number of active aircraft are the Great Lakes Region, with 18 percent; the Western-Pacific Region, with 17 percent; and the Southern Region, with 16 percent. The region with the smallest number of active aircraft is the Alaskan Region, comprising only 3 percent of the active general aviation fleet.
- o States represented by the largest number of registered general aviation aircraft include California with 14 percent, Texas with 8 percent, and Florida with 6 percent. States and U.S. territories with less than 1,000 registered general aviation aircraft are: Puerto Rico, the District of Columbia, Rhode Island, Vermont, Hawaii, Wyoming, and other U.S. territories.
- o The Western-Pacific region accounted for the greatest number of operations, more than 9 million, while the Alaskan region had the fewest number, 1.2 million.

AIRCRAFT TYPE AND PRIMARY USE:

- o Turboprop, rotorcraft, and turbojet aircraft types averaged in excess of 400 flight hours per aircraft, with average hours flown of 448, 423, and 405 hours, respectively. In contrast, fixed wing piston aircraft, which make up more than 89 percent of the active fleet (and represent 78 percent of the total flight time), averaged only 138 flight hours per aircraft.
- o Twin engine turboprops with 13 or more seats had the most average hours flown per aircraft, 895. The aircraft types with the least number of average hours flown were the single engine piston with 1-3 seats, averaging 132 hours, and aircraft types in the "Other" category, which accounted for 95 average hours flown per aircraft.
- o The primary use of active general aviation aircraft is personal use, with more than 58 percent of the active fleet falling into this category. The next closest primary use of general aviation aircraft is business, with 17 percent, followed by instructional use, accounting for 8 percent of the fleet.

AVIONICS:

- o The percent of the general aviation fleet with two-way VHF communication equipment and transponder equipment is 79 and 57 percent, respectively.
- o More than half of the general aviation fleet, approximately 53 percent, have at least one component of an instrument landing system, such as a localizer, marker beacon, or glide slope.
- o Three-fourths of the general aviation aircraft, 75 percent, have some form of navigation equipment, be it VOR navigation equipment, long range navigation equipment or some other navigation equipment.
- o The percent of the general aviation fleet with guidance and control equipment increased substantially over 1987, from 39 percent in 1987 to more than 52 percent in 1988.

CHAPTER II

COMMON GENERAL AVIATION ACTIVITY MEASURES

There are several aviation activity measures which are used to indicate growth trends and activity levels in the general aviation fleet. Some common aviation activity measures of interest are the size of the general aviation population, the number of active aircraft, the total flight hours flown, average flight hours flown per aircraft, and number of landings.

This chapter presents seven tables on these common aviation activity measures and three figures. The first 4 tables, Tables 2.1-2.4, give estimates of the general aviation population size, number of active aircraft, total flight hours flown and average flight hours flown in four different ways, by: 1) Aircraft Type, 2) Service Difficulty Reporting (SDR) Aircraft Manufacturer/Model Group, 3) Region of Based Aircraft, and 4) State of Based Aircraft.

Tables 2.5-2.7 contain data on the number of aircraft landings by the general aviation population. Estimates of the total number of landings, the number of landings in local flight and the number of landings in cross-country flight by aircraft type and by region of based aircraft are given.

To visualize the data given in Tables 2.1-2.7, three figures are included in this chapter. Figures 2.1, 2.2 and 2.3 show, by aircraft type, the number of general aviation active aircraft, total flight hours flown, and number of landings, respectively.

Table 2.2 breaks down the number of estimated active aircraft and their respective average hours flown figures by Service Difficulty Reporting (SDR) aircraft manufacturer/model group. Appendix C lists these SDR aircraft group names and FAA manufacturer/model codes. The 13 "Other" categories listed in the beginning of Table 2.2 refer to all the general aviation aircraft which belong to a manufacturer/model group which has less than 20 aircraft. The different "Other" categories stand for:

- 1 Fixed Wing Piston, 1 Engine, 1-3 Seats.
- 2 Fixed Wing Piston, 1 Engine, 4+ Seats.
- 3 Fixed Wing Piston, 2 Engine, 1-6 Seats.
- 4 Fixed Wing Piston, 2 Engine, 7+ Seats.
- 5 Fixed Wing Piston, Other.
- 6 Fixed Wing Turboprop, 2 Engines, 1-12 Seats.
- 7 Fixed Wing Turboprop, 2 Engines, 13+ Seats.

- 8 Fixed Wing Turboprop, Other.
- 9 Fixed Wing Turbojet, 2 Engines.
- 10 Fixed Wing Turbojet, Other.
- 11 Rotorcraft, Piston.
- 12 Rotorcraft, Turbine.
- 13 Other Aircraft.

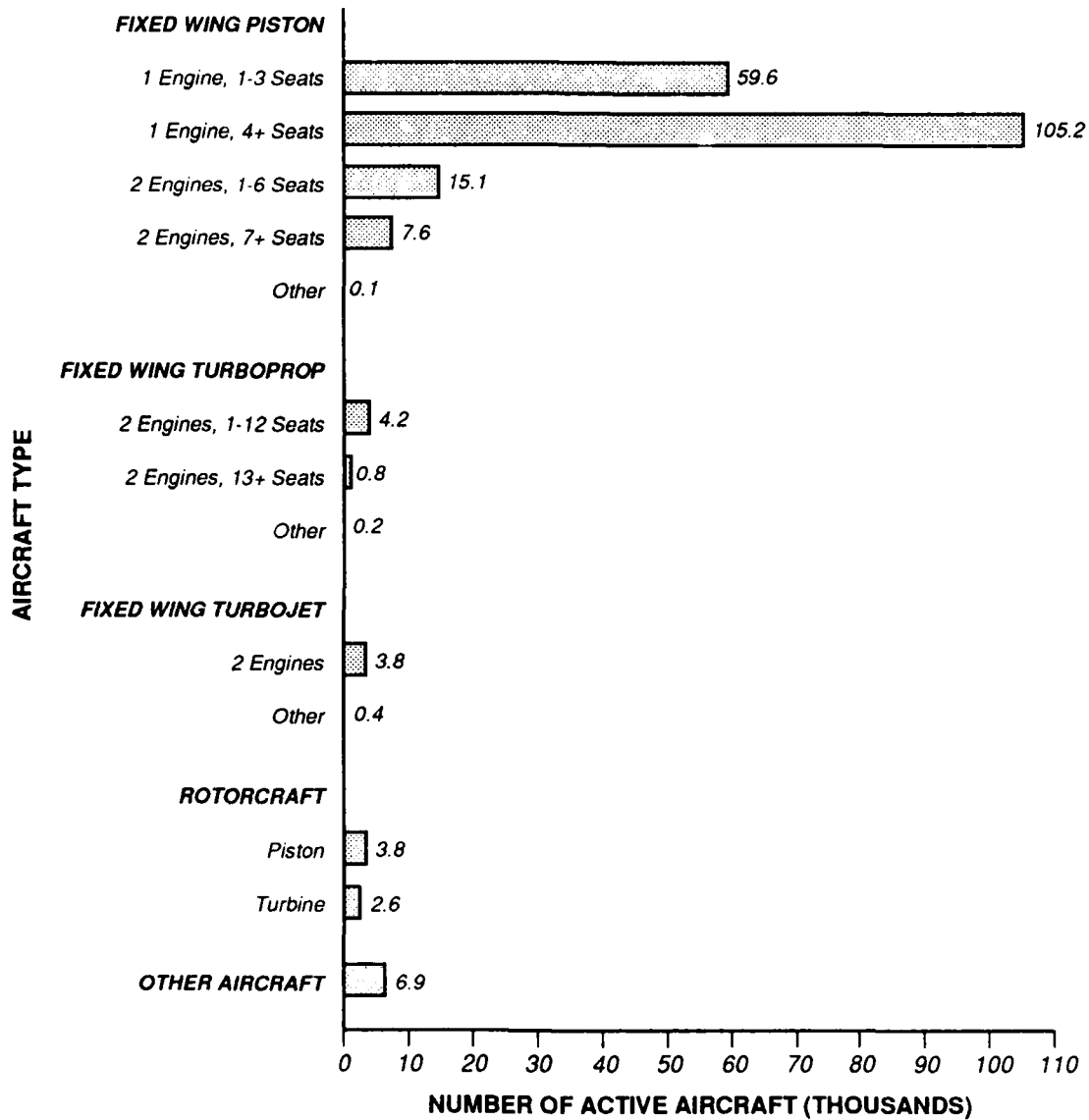
Some observations derived from these tables are:

- o Among all types of general aviation aircraft, there was a great deal of variation in the total hours flown, number of active aircraft, and average hours flown.
- o Single engine piston aircraft, with more than 200,000 registered, dominated the active fleet and contributed the largest portion of total flying time, even though it had one of the lowest average flight times per aircraft (133 hours). In contrast, the turboprop, turbojet and rotorcraft with smaller representations in the active fleet contributed a relatively high proportion of flight time and had higher average hours flown, 448, 405, and 423 hours, respectively.
- o Fixed wing turboprops with 13 or more seats averaged the most hours flown per aircraft, more than 894 average hours. This is attributable to their heavy commercial use as commuter air carriers and air taxis. The rotorcraft and turbojet aircraft also had a relatively greater average number of hours flown per aircraft than other types. All three of these aircraft types, though, have some of the lowest representation in the active fleet.
- o The aircraft with the largest representation in the active fleet is the fixed wing, one engine piston with four or more seats. This group has an estimated number active of more than 105,000, an average 134 hours flown per aircraft.
- o The percentages of active aircraft in each region versus the total number of registered aircraft in each region are relatively close together, ranging from 71 percent to 86 percent.
- o The three regions with the greatest number of active aircraft are the Great Lakes with 37,435; the Western-Pacific with 36,794; and the Southern with 34,630 active aircraft.
- o The total active aircraft flight time in the regions remained virtually the same as for 1987. In five regions, flight time increased over 1987 estimates, increases ranging from two

percent in the Great Lakes region to 14 percent in the New England region. The Northwest Mountain and Alaskan regions showed decreases of 9 and 27 percent, respectively, while both the Southern and Southwestern regions had no appreciable change. The Southern region accounted for the most flight time, with the Western-Pacific, Great Lakes, and Southwestern regions close behind.

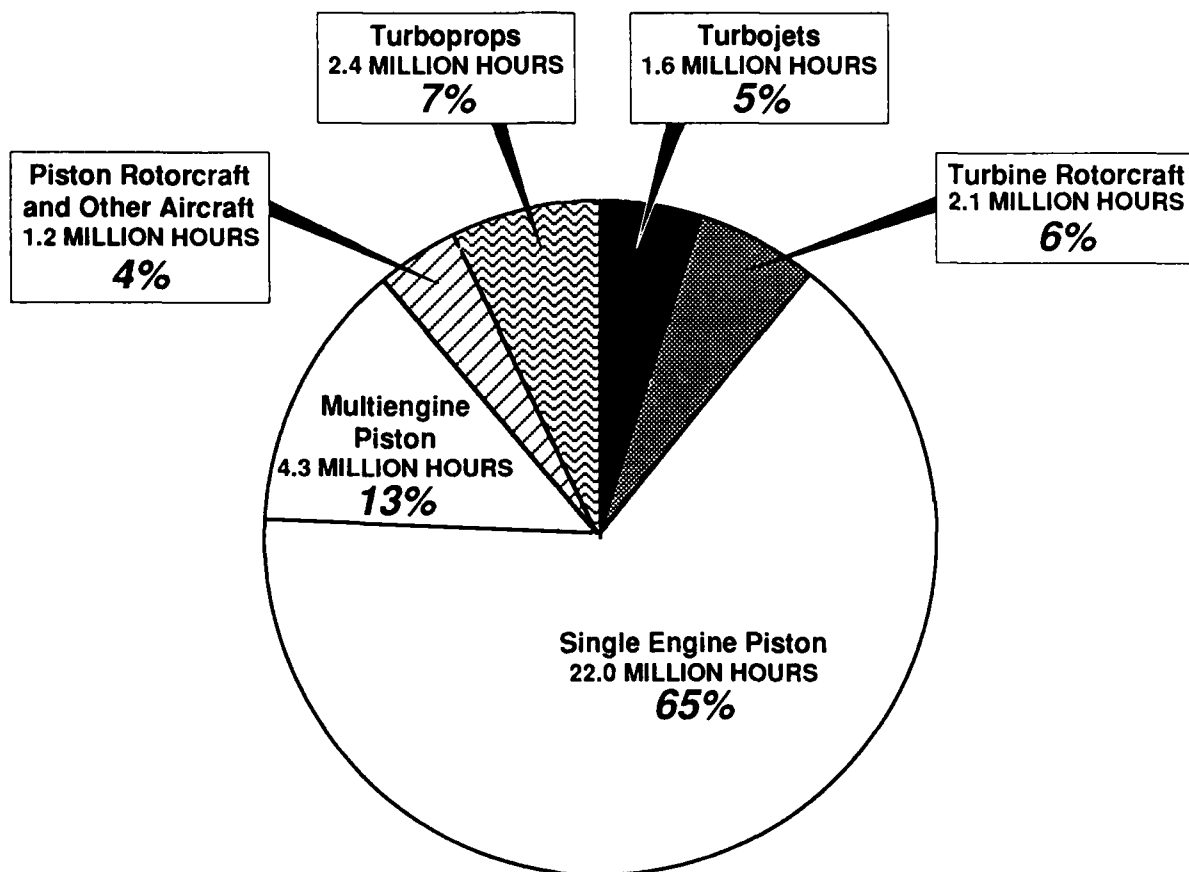
- o The state with the largest estimated number of active aircraft is California with almost 29,000 active aircraft. The next top two states are Texas with 17,000 and Florida with 13,000 active aircraft. Hawaii has the highest estimated average hours flown, 621.2.
- o On a national level, the results of the 1988 General Aviation Activity and Avionics survey revealed that during 1988 more than 33 million hours were flown by the more than 210,000 active general aviation aircraft in the U.S. fleet.
- o The average flight time per active aircraft in the general aviation fleet was 154 hours, and these active aircraft comprised about 81 percent of the registered general aviation fleet.
- o The statistics for 1988 showed a three percent decrease in the number of active aircraft in the general aviation fleet, a slight 4 tenths of one percent increase in flying time, and a 3.5 percent increase in the average hours flown per aircraft over 1987's comparable figures. The last five years' statistics for these three activity measures are depicted graphically in Appendix B, Figures B.5-B.7, respectively.
- o During 1988, it is estimated that general aviation aircraft made approximately 48 million landings. This represents an increase of almost 1.3 million landings from last year's figures.
- o Single engine piston aircraft made the most landings, 34.4 million, with the majority of the landings in local, rather than cross-country flight. Most of the rotorcraft landings were also made in local flight.
- o Turboprops and turbojets, which are used primarily for long, cross-country flying, had a greater number of cross-country landings versus local landings than other aircraft types.

Figure 2.1
1988 GENERAL AVIATION ACTIVE AIRCRAFT
BY AIRCRAFT TYPE



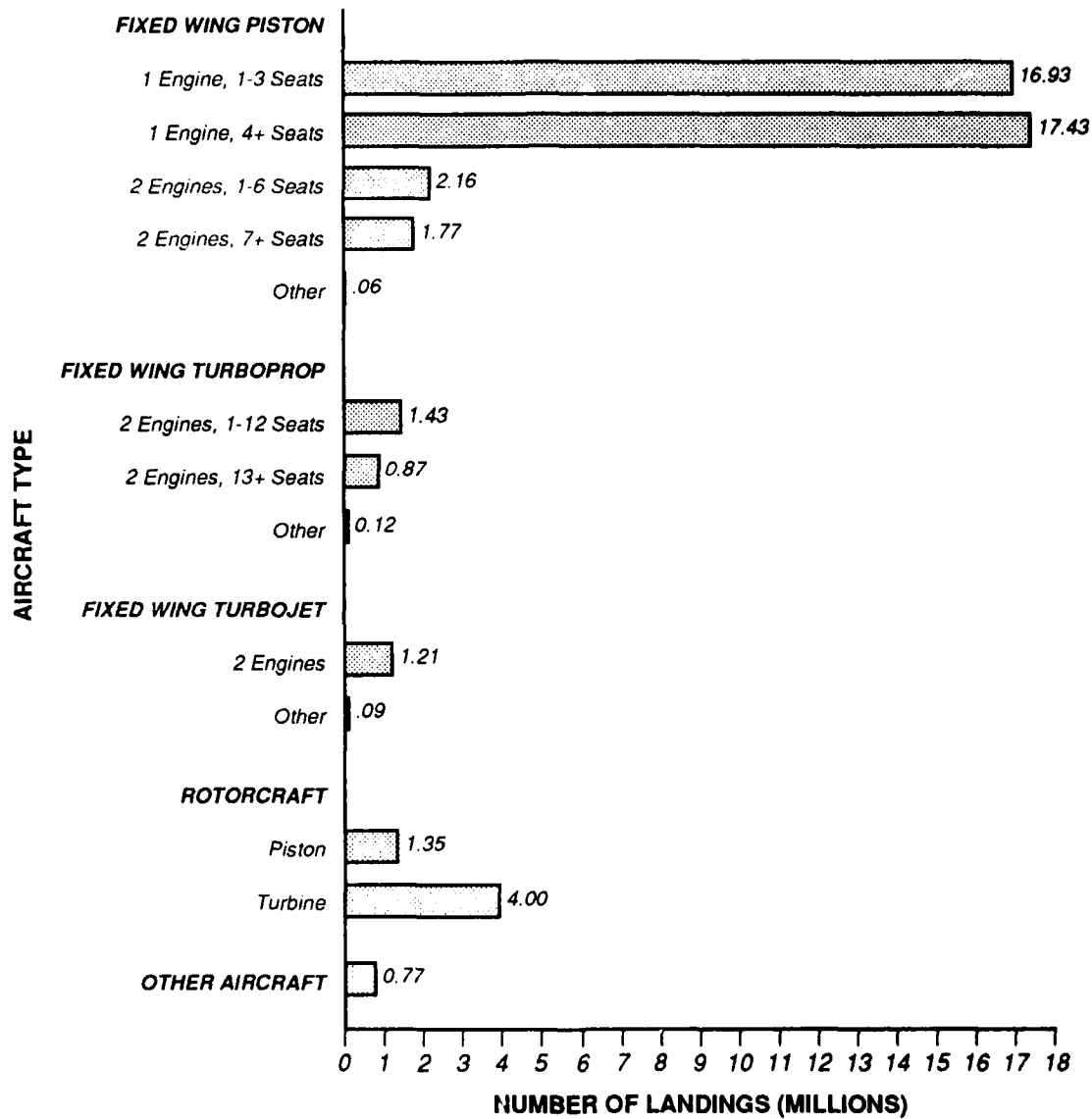
SOURCE: Table 2.1

Figure 2.2
1988 GENERAL AVIATION TOTAL FLIGHT HOURS
BY AIRCRAFT TYPE



SOURCE: Table 2.1

Figure 2.3
1988 GENERAL AVIATION LANDINGS
BY AIRCRAFT TYPE



SOURCE: Table 2.5

2.1 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS	84,531	59,553	1.3	70.5	0.9	7,881,939	4.0	132.2	3.9
1 ENG: 4+ SEATS	118,382	105,207	0.6	88.9	0.6	14,064,511	2.6	134.1	2.6
1 ENGINE: TOTAL	202,913	164,760	0.6	81.2	0.5	21,946,454	2.2	133.4	2.2
2 ENG: 1-6 SEATS	17,511	15,143	1.8	86.5	1.5	2,298,144	4.3	149.5	4.0
2 ENG: 7+ SEATS	8,806	7,554	2.4	85.8	2.0	1,959,259	7.4	255.5	6.3
2 ENGINE: TOTAL	26,317	22,698	1.4	86.2	1.2	4,257,403	4.1	181.1	3.5
PISTON: OTHER	181	99	21.2	54.7	11.6	22,199	44.5	225.3	42.2
PISTON: TOTAL	229,411	187,556	0.6	81.8	0.5	26,226,058	2.0	138.2	1.9
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS	4,543	4,231	1.8	93.1	1.7	1,557,729	5.0	373.0	4.9
2 ENG: 13+ SEATS	1,010	826	5.3	81.8	4.4	728,349	12.0	894.8	10.3
2 ENGINE: TOTAL	5,553	5,057	1.8	91.1	1.6	2,286,078	5.1	450.3	4.6
TURBOPROP: OTHER	230	202	6.9	87.8	6.1	83,869	14.9	392.0	16.7
TURBOPROP: TOTAL	5,783	5,259	1.7	90.9	1.6	2,369,947	5.0	447.9	4.5

2.1 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	4,061	3,821	2.1	94.1	1.9	1,548,225	4.7	412.0	4.1
TURBOJET: OTHER	494	367	5.4	74.3	4.0	129,528	10.9	346.5	10.4
TURBOJET: TOTAL	4,555	4,187	2.0	91.9	1.8	1,677,752	4.4	405.0	3.8
FIXED WING: TOTAL	239,749	197,003	0.6	82.2	0.5	30,273,758	1.8	148.0	1.8
ROTORCRAFT									
PISTON	5,334	2,584	7.9	48.4	3.8	575,955	11.6	227.9	9.0
TURBINE	4,434	3,822	2.7	86.2	2.3	2,130,764	7.6	576.7	7.6
ROTORCRAFT: TOTAL	9,768	6,406	3.6	65.6	2.3	2,706,719	6.5	423.3	6.2
OTHER	9,917	6,857	4.1	69.1	2.8	612,998	24.2	95.2	25.1
TOTAL	259,434	210,266	0.5	81.0	0.4	33,593,476	1.7	153.6	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER 1	16,004	9,506	4.9	59.4	2.9	579,421	9.3	61.0	7.9
OTHER 2	1,604	1,294	5.0	80.7	4.0	105,078	10.3	81.2	9.0
OTHER 3	313	165	10.6	52.7	5.6	19,223	14.8	116.5	10.3
OTHER 4	256	125	15.0	49.0	7.3	27,910	22.3	222.5	16.5
OTHER 5	112	54	35.6	48.1	17.1	16,943	57.5	314.2	45.1
OTHER 6	330	305	4.9	92.4	4.5	239,917	20.5	787.2	19.9
OTHER 7	296	199	18.2	67.1	12.2	225,506	28.0	1,135.9	21.2
OTHER 8	112	105	7.9	93.7	7.4	34,059	30.9	324.5	29.8
OTHER 9	544	404	16.7	74.2	12.4	190,548	24.6	472.1	18.0
OTHER 10	267	184	10.7	68.8	7.4	51,561	24.7	280.7	22.3
OTHER 11	1,941	598	22.5	30.8	6.9	86,900	30.1	145.3	20.1
OTHER 12	408	310	14.5	76.0	11.0	197,146	25.5	635.5	20.9
OTHER 13	3,204	2,150	9.4	67.1	6.3	291,011	47.5	135.4	46.6
ADAMS A50S	134	121	8.3	90.4	7.5	3,072	24.3	25.4	22.9
AERORSJ2	38	10	38.6	25.4	9.8	421	52.3	43.7	35.3
AEROSPAS355	114	99	9.9	86.7	8.6	34,214	15.2	346.3	11.5
AEROSPSA316	87	80	18.2	92.0	16.7	67,335	27.1	841.3	20.0
AGUSTA205	28	28	0.0	100.0	0.0	11,477	21.4	409.9	21.4
AGUSTAA109	68	46	27.0	67.2	18.2	10,802	37.9	236.6	26.6
AIRPTSA	206	121	14.3	58.6	8.4	13,728	22.0	113.7	16.8
AIRSPC18	24	16	15.5	65.1	10.1	1,251	29.7	80.0	25.3

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
AIRTRCAT300	428	360	10.6	84.0	8.9	171,113	19.5	475.8	16.4
AIRTRCAT400	60	60	0.0	100.0	0.0	18,300	23.7	305.0	23.7
AMD FALC10	132	132	0.0	100.0	0.0	47,622	9.9	360.8	9.9
AMD FALC20	189	187	2.6	99.1	2.5	62,587	10.5	334.1	10.2
AMD FALC50	95	95	0.0	100.0	0.0	51,971	8.9	547.1	8.9
AMTR TMK	21	4	95.2	20.0	19.0	42	95.2	10.0	0.0
ARCTICS1A	91	27	25.8	29.8	7.7	832	30.3	30.7	15.9
ARCTICS1B1	25	20	10.4	81.7	8.5	1,037	19.7	50.7	16.7
ARONCA15	196	110	9.8	56.4	5.5	8,778	17.1	79.5	14.0
ARONCA58	143	61	26.4	42.4	11.2	3,208	37.4	52.9	26.5
ARONCA65	145	53	24.7	36.6	9.0	1,936	29.2	36.5	15.6
ARONCAC3	56	15	24.9	26.4	6.6	332	34.9	22.4	24.5
AVIANWFALCON	28	12	68.3	41.9	28.7	235	68.3	20.0	0.0
AVIANWSKYHWK	41	31	16.2	75.8	12.3	1,595	31.2	51.4	26.6
AYRES S2	767	675	7.1	88.0	6.2	236,622	14.9	343.9	14.3
BAG B206	26	6	115.9	22.2	25.8	841	116.5	145.5	11.4
BAG DH125	68	68	0.0	100.0	0.0	34,698	8.2	510.3	8.2
BALWKSFIREFY	1,693	1,065	12.0	62.9	7.6	33,316	21.1	31.3	17.3
BBAVIA11	802	439	14.8	54.7	8.1	15,196	22.0	34.6	16.3
BBAVIA7	3,358	2,227	8.1	66.3	5.4	147,795	15.0	66.4	12.6
BBAVIA8	226	180	10.8	79.6	8.6	25,332	22.9	140.8	20.1

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BEECH 100	241	211	10.0	87.6	8.7	123,545	24.9	585.3	22.8
BEECH 17	197	101	24.6	51.4	12.6	6,485	34.8	64.1	24.6
BEECH 18	738	373	32.3	50.5	16.3	223,054	38.1	598.4	19.9
BEECH 1900	69	69	0.0	100.0	0.0	131,592	21.3	1,907.1	21.3
BEECH 200	790	788	1.0	99.7	1.0	306,848	7.9	389.5	7.9
BEECH 23	2,703	2,433	3.8	90.0	3.5	303,263	17.1	124.6	16.6
BEECH 300	134	134	0.0	100.0	0.0	48,831	13.3	364.4	13.3
BEECH 33	1,878	1,878	0.0	100.0	0.0	414,084	28.0	220.5	28.0
BEECH 35	6,656	5,710	3.4	85.8	2.9	515,742	7.0	90.3	6.1
BEECH 36	2,281	2,161	3.9	94.8	3.7	365,736	17.1	169.2	16.6
BEECH 45	290	221	10.3	76.2	7.8	25,709	23.4	116.3	21.0
BEECH 50	297	239	15.6	80.6	12.5	22,039	25.1	92.0	19.7
BEECH 55	2,126	2,081	2.3	97.9	2.2	327,181	10.5	157.2	10.3
BEECH 56	61	50	8.1	82.2	6.7	7,589	32.8	151.3	31.8
BEECH 58	1,504	1,504	0.0	100.0	0.0	338,409	10.2	225.0	10.2
BEECH 60	429	426	3.1	99.3	3.1	50,731	19.0	119.1	18.7
BEECH 65	115	101	13.1	87.4	11.5	22,518	43.7	224.0	41.6
BEECH 76	285	283	1.9	99.3	1.9	63,441	29.2	224.2	29.2
BEECH 77	232	205	6.8	88.4	6.0	38,749	19.5	189.0	18.3
BEECH 80	157	105	17.1	66.7	11.4	24,992	37.7	238.6	33.5
BEECH 90	1,088	1,056	3.8	97.0	3.7	318,227	10.1	301.5	9.4

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BEECH 95	443	416	7.1	93.8	6.7	44,245	23.1	106.5	21.9
BEECH 99	117	103	16.9	87.7	14.8	83,046	31.1	809.3	26.1
BELL 204	184	104	17.9	56.4	10.1	23,741	23.6	229.0	15.3
BELL 206	1,884	1,829	2.5	97.1	2.4	1,201,171	11.4	656.7	11.1
BELL 212	105	102	8.6	97.0	8.3	32,248	27.6	316.7	26.2
BELL 222	74	67	8.2	91.0	7.5	17,944	25.4	266.4	24.0
BELL 412	52	52	0.0	100.0	0.0	46,976	34.9	903.4	34.9
BELL 47	1,218	817	15.5	67.1	10.4	139,420	32.0	170.6	28.0
BLANCA11	80	30	31.0	38.0	11.8	930	66.2	30.6	58.5
BLANCA1413	248	37	96.4	14.9	14.4	1,588	100.7	42.9	29.1
BLANCA1419	269	180	12.1	67.0	8.1	8,959	19.5	49.7	15.2
BLANCA17	965	840	7.9	87.0	6.9	83,043	28.0	98.9	26.9
BLANCA7	2,322	1,870	6.5	80.5	5.2	277,688	36.2	148.7	35.6
BLANCA8	453	384	9.6	84.7	8.1	26,177	18.0	68.3	15.3
BNORM BN2	74	30	64.6	40.0	25.8	10,628	68.6	359.0	22.9
BOEING75	1,816	738	14.9	40.6	6.0	35,422	24.3	48.0	19.2
BOLKMS105	133	133	0.0	100.0	0.0	56,506	17.8	424.9	17.8
BOLKMS117	69	37	59.7	53.5	31.9	18,518	60.6	501.7	10.5
BRAERODH125	93	93	0.0	100.0	0.0	45,757	10.3	492.0	10.3
BRWSTRFLEET2	24	10	17.6	42.9	7.5	270	22.2	26.2	13.5
BRWSTRFLEET7	23	8	36.8	33.3	12.3	146	53.0	19.0	38.1

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BUKER 131	31	15	31.5	47.8	15.1	461	45.8	31.1	33.3
CAMRONMODELO	243	188	16.2	77.5	12.5	11,941	27.4	63.4	22.1
CASA C212	23	23	0.0	100.0	0.0	690	0.0	30.0	0.0
CESSNA120	849	701	8.0	82.6	6.6	47,756	15.3	68.1	13.0
CESSNA140	2,306	1,427	9.5	61.9	5.9	83,016	25.3	58.2	23.4
CESSNA150	18,451	16,124	2.1	87.4	1.8	3,430,319	7.6	212.7	7.3
CESSNA170	2,436	1,847	7.4	75.8	5.6	136,473	11.7	73.9	9.1
CESSNA172	24,435	23,230	1.1	95.1	1.0	3,519,485	6.2	151.5	6.1
CESSNA175	1,283	1,073	6.6	83.6	5.5	58,620	14.5	54.6	12.9
CESSNA177	2,721	2,601	2.7	95.6	2.6	306,922	10.4	118.0	10.1
CESSNA180	2,721	2,365	5.7	86.9	4.9	297,206	17.6	125.6	16.6
CESSNA182	13,646	12,694	1.8	93.0	1.6	1,632,413	7.8	128.6	7.6
CESSNA185	1,582	1,452	4.9	91.8	4.5	246,018	20.3	169.5	19.7
CESSNA188	1,610	1,348	7.4	83.7	6.2	267,312	14.3	198.3	12.2
CESSNA190	87	52	20.8	60.2	12.5	8,399	42.2	160.3	36.7
CESSNA195	498	354	12.9	71.0	9.1	41,596	27.8	117.6	24.6
CESSNA205	232	222	4.6	95.7	4.4	24,724	17.7	111.4	17.1
CESSNA206	2,681	2,337	4.8	87.2	4.2	411,115	12.8	175.9	11.9
CESSNA207	369	364	4.6	98.8	4.6	214,431	18.5	588.3	17.9
CESSNA208	77	38	30.8	49.2	15.1	15,563	31.0	410.7	2.5
CESSNA210	5,921	5,453	2.8	92.1	2.6	777,781	7.9	142.6	7.4

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CESSNA303	172	169	1.9	98.3	1.9	47,658	12.5	281.8	12.4
CESSNA305	277	227	9.2	82.1	7.5	43,000	29.9	189.0	28.4
CESSNA310	2,972	2,155	8.3	72.5	6.0	274,031	14.7	127.1	12.1
CESSNA320	313	254	10.4	81.1	8.5	25,528	35.7	100.5	34.1
CESSNA335	43	43	0.0	100.0	0.0	8,259	12.1	192.1	12.1
CESSNA336	77	54	14.9	70.2	10.5	5,455	28.9	100.9	24.7
CESSNA337	1,137	1,053	3.8	92.6	3.5	97,686	12.8	92.8	12.3
CESSNA340	876	876	0.0	100.0	0.0	176,338	10.7	201.3	10.7
CESSNA401	217	208	6.2	95.7	5.9	38,608	22.0	185.8	21.1
CESSNA402	627	506	12.0	80.7	9.7	254,832	24.9	503.8	21.8
CESSNA404	130	127	4.6	97.5	4.5	53,719	21.2	423.7	20.7
CESSNA411	132	98	23.3	74.0	17.2	6,835	49.9	70.0	44.1
CESSNA414	763	763	0.0	100.0	0.0	142,709	11.7	187.0	11.7
CESSNA421	1,160	1,158	1.4	99.6	1.4	210,421	17.0	181.7	16.9
CESSNA425	176	176	0.0	100.0	0.0	48,044	9.1	273.0	9.1
CESSNA441	222	219	2.9	98.7	2.8	81,643	14.2	372.7	13.9
CESSNA500	626	606	4.0	96.8	3.9	222,848	14.5	367.8	14.0
CESSNA501	48	48	0.0	100.0	0.0	15,718	16.6	327.5	16.6
CESSNA650	131	131	0.0	100.0	0.0	53,437	22.0	407.9	22.0
CESSNA750	61	15	46.2	24.3	11.2	323	52.7	21.8	25.3
CESSNAUC77	20	9	37.7	47.1	17.8	572	78.7	60.7	69.0

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CESSNAUC94	32	12	21.1	37.0	7.8	413	25.4	34.9	14.3
CHILD S1	58	56	6.1	96.6	5.9	3,550	21.5	63.4	20.6
CHILD S2	163	159	4.4	97.4	4.3	13,934	27.6	87.7	27.3
CNDALRCL600	113	113	0.0	100.0	0.0	37,508	11.6	331.9	11.6
CNTRAR101	33	33	0.0	100.0	0.0	3,919	20.0	118.8	20.0
COMWTH185	111	25	32.4	22.1	7.2	1,031	43.0	41.9	28.2
CONAERLA4	466	384	12.1	82.3	9.9	35,371	23.6	92.2	20.3
CURTISJR	20	3	54.7	13.3	7.3	40	56.9	15.0	15.8
CURTISROBIN	35	4	36.3	10.7	3.9	75	36.3	20.0	0.0
CURTISTRVAIR	163	40	14.6	24.4	3.6	2,792	19.0	70.1	12.2
CVAC 240	33	20	33.2	59.1	19.6	3,759	54.1	192.8	42.7
CVAC BT13	101	46	19.1	45.5	8.7	1,988	24.6	43.2	15.5
CVAC STC580	35	24	22.7	68.7	15.6	4,938	35.9	205.2	27.8
DART G	22	5	69.4	22.2	15.4	141	98.5	28.8	69.9
DHAV DHC1	100	58	24.1	57.7	13.9	3,176	29.9	55.0	17.7
DHAV DHC2	243	176	8.2	72.6	5.9	69,599	19.4	394.7	17.6
DHAV DHC3	37	34	22.6	92.9	21.0	24,408	28.4	710.4	17.3
DHAV DHC6	101	101	0.0	100.0	0.0	75,354	39.5	746.1	39.5
DHAVXXDH82	82	48	15.0	58.4	8.8	1,797	18.6	37.5	11.0
DORNERDO228	22	22	0.0	100.0	0.0	0	0.0	0.0	0.0
DOUG A26	27	10	57.1	35.7	20.4	366	81.2	38.0	57.8

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DOUG DC3	279	231	17.5	82.7	14.5	34,508	68.0	149.6	65.8
DOUG DC4	47	23	41.9	48.1	20.2	1,142	148.2	50.5	142.2
DOUG DC6	22	22	0.0	100.0	0.0	4,114	0.0	187.0	0.0
EAGLE DW	71	71	0.0	100.0	0.0	15,484	15.4	218.1	15.4
EIRVON20	114	112	3.9	98.4	3.9	3,450	49.8	30.7	49.6
EMAIR MA1	21	21	0.0	100.0	0.0	9,100	7.7	433.3	7.7
EMB 110	47	43	7.7	91.6	7.0	57,386	16.8	1,332.8	14.9
ENSTRMF28	421	317	8.0	75.2	6.0	45,636	25.4	145.1	25.1
FLEET 16B	23	12	21.6	53.3	11.5	489	25.3	39.9	13.2
FRCHLD24	283	81	23.0	28.5	6.6	2,452	32.2	30.6	22.6
FRCHLDC119	23	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FRCHLDM62	217	118	18.3	54.2	9.9	4,008	35.4	34.1	30.4
GALAXYGX7	32	32	0.0	100.0	0.0	757	19.0	23.7	19.0
GENBALAX6	60	36	40.3	59.3	23.9	676	59.8	19.0	44.2
GLASER300	23	22	10.6	94.1	9.9	2,167	28.7	100.1	26.7
GLASER400	34	33	6.0	96.2	5.8	4,017	19.4	122.9	18.5
GLASFL201	35	34	6.6	96.3	6.4	1,608	34.5	47.7	33.8
GLASFLH301	107	101	4.5	94.6	4.3	3,934	18.6	38.8	18.0
GROB 103CAT	56	53	8.6	95.0	8.2	7,701	21.8	144.8	20.1
GROB 109	67	60	5.2	90.0	4.6	5,270	20.6	87.4	20.0
GROB ASTIR	60	55	9.9	92.1	9.1	3,122	37.5	56.5	36.2

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GRTLKS2T1	167	129	15.9	77.1	12.3	5,717	26.0	44.4	20.6
GRUMANS16	25	15	56.5	60.0	33.9	3,900	56.5	260.0	0.0
GRUMAVAA1	552	500	6.8	90.6	6.2	41,489	17.3	83.0	15.9
GRUMAVAA5	1,026	971	4.2	94.7	4.0	129,348	14.3	133.2	13.6
GRUMAVG1159	34	34	0.0	100.0	0.0	12,070	13.1	355.0	13.1
GRUMAVG164	1,172	1,125	4.1	96.0	3.9	424,966	11.9	377.9	11.2
GRUMAVG21	51	26	49.0	51.4	25.2	4,775	55.0	182.3	25.0
GRUMAVTBM	35	13	37.5	37.5	14.1	758	52.5	57.8	36.7
GULSTM112	658	544	9.4	82.7	7.8	54,264	21.6	99.7	19.4
GULSTM500	288	277	4.9	96.1	4.7	63,698	18.2	230.1	17.5
GULSTM520	45	13	71.3	28.6	20.4	1,436	76.9	111.7	28.9
GULSTM560	110	93	13.9	84.6	11.7	3,802	24.5	40.9	20.2
GULSTM680	286	153	15.6	53.4	8.3	24,145	24.9	158.2	19.4
GULSTM680TP	95	84	14.6	88.6	13.0	6,989	42.9	83.1	40.4
GULSTM690TC	23	23	0.0	100.0	0.0	7,598	11.5	330.4	11.5
GULSTM690TP	381	364	5.2	95.5	5.0	91,442	12.7	251.4	11.6
GULSTMAA1	591	433	14.9	73.3	10.9	34,574	26.5	79.8	22.0
GULSTMAA5	630	595	3.1	94.5	3.0	50,248	9.5	84.4	9.0
GULSTMG1159	202	185	9.4	91.5	8.6	83,811	18.2	453.2	15.6
GULSTMG159	101	63	22.7	62.5	14.2	24,281	30.3	384.7	20.2
GULSTMG44	87	60	33.9	68.8	23.3	4,600	51.5	76.9	38.8

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GULSTMG73	28	17	25.3	59.4	15.0	11,451	44.8	688.8	37.0
GULSTMGA7	50	50	0.0	100.0	0.0	8,937	9.8	178.7	9.8
H23/HTE	31	13	44.4	42.9	19.0	3,144	49.0	236.7	20.6
H34/55	27	1	254.2	5.3	13.4	283	254.2	199.0	0.0
HELIO H250	11	11	0.0	100.0	0.0	742	34.5	67.4	34.5
HELIO H295	93	72	18.9	77.8	14.7	19,282	38.3	266.4	33.3
HELIO H391	20	11	31.1	57.1	17.7	500	40.1	43.8	25.4
HILLERFH1100	58	18	34.7	30.4	10.6	2,971	50.3	168.3	36.4
HILLERUH12	540	170	40.8	31.6	12.9	36,035	46.7	211.4	22.7
HSPAVNHA200	23	23	0.0	100.0	0.0	495	17.3	21.5	17.3
HUGHES269	652	449	9.8	68.9	6.7	196,663	18.3	438.1	15.5
HUGHES369	578	432	14.4	74.7	10.7	203,428	29.3	471.4	25.5
HWKSLYDH104	31	0	0.0	0.0	0.0	0	0.0	0.0	0.0
HWKSLYDH125	181	181	0.0	100.0	0.0	53,027	12.6	293.0	12.6
HYNES B2	124	64	13.5	51.4	6.9	1,531	19.4	24.0	14.0
INTRCP200	30	24	18.0	80.0	14.4	1,387	28.2	57.8	21.7
ISRAEL1121	96	86	8.2	89.5	7.3	18,730	32.5	218.0	31.4
ISRAEL1123	22	22	0.0	100.0	0.0	5,135	16.4	233.4	16.4
ISRAEL1124	204	204	0.0	100.0	0.0	84,818	9.9	415.8	9.9
JBMSTRDGA15	85	17	64.6	19.7	12.7	532	81.0	31.8	48.9
LAIFN10	35	3	93.4	8.3	7.8	58	93.4	20.0	0.0

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LEAR 23	50	48	8.7	95.0	8.3	7,695	25.2	162.0	23.7
LEAR 24	170	164	5.6	96.2	5.4	65,583	29.5	400.9	28.9
LEAR 25	235	230	4.5	97.7	4.4	138,793	15.6	604.4	14.9
LEAR 35	417	417	0.0	100.0	0.0	195,103	8.7	467.9	8.7
LEAR 55	103	103	0.0	100.0	0.0	45,415	8.6	440.9	8.6
LET L13	165	149	11.2	90.4	10.1	9,702	33.7	65.1	31.8
LKHEED12A	19	7	27.9	37.9	10.6	214	43.8	29.8	33.7
LKHEED1329	84	81	4.8	96.8	4.6	25,752	14.6	316.6	13.8
LKHEED18	61	33	36.1	53.8	19.4	798	49.4	24.3	33.8
LKHEEDP2V	22	11	67.4	50.0	33.7	132	67.4	12.0	0.0
LKHEEDPV1	36	2	71.3	5.4	3.8	56	71.3	29.0	0.0
LKHEEDT33	48	7	46.9	13.6	6.4	244	49.8	37.5	16.5
LUSCOM8	2,076	1,119	12.7	53.9	6.8	55,725	22.6	49.8	18.7
MAULE M4	268	160	25.8	59.6	15.4	11,603	29.0	72.6	13.3
MAULE M5	438	410	6.6	93.6	6.1	35,852	14.1	87.4	12.5
MAULE M6	71	64	6.6	89.7	5.9	9,111	13.8	143.1	12.1
MCLISHFUNKB	136	78	12.9	57.0	7.3	4,098	21.6	52.8	17.4
MEYERSOTW	45	23	21.6	51.3	11.1	800	27.6	34.7	17.2
MNCOUP90	66	18	35.0	27.1	9.5	415	53.4	23.2	40.4
MNMITM18	130	56	20.1	43.0	8.6	1,485	32.5	26.6	25.5
MOONEYM20	6,236	5,661	3.0	90.8	2.7	684,739	10.4	121.0	9.9

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MRCHTIS205	47	38	16.6	79.9	13.3	1,663	25.8	44.3	19.8
MTSBSIMU2	276	253	8.7	91.7	8.0	55,368	24.6	218.8	23.0
MTSBSIMU300	69	63	0.0	100.0	0.0	21,307	15.2	308.8	15.2
MULTECD16	41	15	33.7	37.5	12.6	637	39.7	41.4	21.0
NAMER B25	52	40	22.0	76.0	16.8	2,248	26.6	56.9	15.0
NAMER F51	147	68	21.6	46.2	10.0	4,585	32.3	67.5	24.0
NAMER NA260	157	75	34.0	47.8	16.2	4,295	43.7	57.2	27.5
NAMER T6	531	452	7.2	85.2	6.1	30,738	16.8	68.0	15.2
NATBAL752	34	32	11.9	92.9	11.1	1,303	21.9	41.3	18.4
NAVAL N3N	119	54	15.3	45.4	6.9	2,385	20.8	44.1	14.1
NAVIONNAVION	555	403	10.0	72.7	7.3	31,820	15.6	78.9	11.9
NORD 3202	24	6	128.1	25.0	32.0	240	128.1	40.0	0.0
NORD SV4	44	28	24.9	62.5	15.6	1,261	36.3	45.8	26.4
NORWST65	54	31	11.4	57.7	6.5	1,801	23.3	57.8	20.3
ORLHELH19	73	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ORLHELH58	35	0	0.0	0.0	0.0	0	0.0	0.0	0.0
PARTENP68	38	38	0.0	100.0	0.0	9,294	40.3	244.6	40.3
PICARDAX6	149	27	32.2	18.2	5.9	494	52.0	18.2	40.9
PILATSB4	26	20	14.3	77.8	11.1	1,314	27.8	65.0	23.9
PIPER 600	364	364	0.0	100.0	0.0	50,051	17.9	137.5	17.9
PIPER E2	17	9	22.5	50.0	11.2	177	32.6	20.9	23.7

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PIPER J2	57	23	19.0	40.8	7.8	463	25.8	19.9	17.3
PIPER J3	4,068	2,280	7.4	56.0	4.1	124,400	13.7	54.6	11.5
PIPER J4	239	97	25.8	40.5	10.5	2,448	46.8	25.3	39.1
PIPER J5	336	139	11.4	41.4	4.7	10,496	40.5	75.4	38.9
PIPER PA12	1,298	849	9.5	65.4	6.2	67,177	15.7	79.1	12.5
PIPER PA14	94	75	14.3	80.2	11.5	6,398	23.4	84.9	18.5
PIPER PA15	179	121	17.6	67.7	11.9	5,674	35.8	46.8	31.1
PIPER PA16	355	224	19.0	63.0	12.0	6,681	40.6	29.9	35.9
PIPER PA17	105	64	15.0	61.3	9.2	2,896	21.6	45.0	15.6
PIPER PA18	3,492	2,144	10.5	61.4	6.4	279,381	22.8	130.3	20.3
PIPER PA20	412	257	10.7	62.4	6.7	15,821	17.6	61.5	14.0
PIPER PA22	4,695	2,927	6.9	62.3	4.3	191,090	10.6	64.9	8.6
PIPER PA23	3,217	2,574	5.8	80.0	4.7	318,101	13.8	123.6	12.5
PIPER PA24	3,095	2,761	4.7	89.2	4.2	219,786	9.9	79.6	8.8
PIPER PA25	1,133	930	8.8	82.1	7.3	201,686	16.2	216.9	13.6
PIPER PA28	21,721	20,343	1.2	93.7	1.1	2,711,049	5.9	133.7	5.8
PIPER PA30	1,200	1,092	5.4	91.0	4.9	149,023	14.5	136.4	13.5
PIPER PA31	1,809	1,705	4.6	94.3	4.3	481,309	13.4	297.1	12.6
PIPER PA31T	537	440	10.5	81.9	8.6	116,240	15.4	264.3	11.3
PIPER PA32	4,202	3,861	3.3	91.9	3.1	570,937	13.2	147.9	12.8
PIPER PA34	1,875	1,787	5.2	95.3	5.0	384,968	16.8	215.5	16.0

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PIPER PA36	346	290	14.6	83.8	12.3	51,752	22.8	178.4	17.5
PIPER PA38	1,270	1,164	4.9	91.6	4.5	222,186	18.1	190.9	17.4
PIPER PA42	102	102	0.0	100.0	0.0	38,455	12.9	377.0	12.9
PIPER PA44	305	294	4.8	96.5	4.7	112,587	22.6	382.6	22.1
PIPER PA46	296	296	0.0	100.0	0.0	78,934	13.0	266.7	13.0
PROPTJ200	65	54	22.6	82.8	18.7	4,283	41.5	79.6	34.8
RAVEN RX6	202	70	39.6	34.8	13.8	1,033	53.7	14.7	36.3
RAVEN S50	85	15	49.8	18.0	9.0	610	53.0	39.8	18.1
RAVEN S55	803	467	25.2	58.2	14.6	17,492	35.0	37.4	24.3
RAVEN S57	45	45	0.0	100.0	0.0	2,724	12.0	60.5	12.0
RAVEN S60	229	207	16.0	90.4	14.5	5,825	26.2	28.1	20.8
RAVEN S66	52	46	13.1	88.9	11.7	5,584	21.7	120.8	17.3
RKWE1L500	32	26	13.7	82.4	11.3	4,424	38.1	167.9	35.5
RKWE1L700	21	21	0.0	100.0	0.0	5,334	32.1	254.0	32.1
RKWE1LNA265	311	274	8.7	88.2	7.7	105,519	16.2	384.7	13.7
ROBSINR22	212	194	4.0	91.5	3.7	72,864	13.5	375.7	12.9
ROLSCHLS	126	119	5.1	94.7	4.8	8,638	19.6	72.4	18.9
RYAN ST3	163	82	18.7	50.4	9.4	2,941	22.3	35.8	12.2
RYAN STA	30	9	74.3	28.6	21.2	557	82.1	65.0	34.8
SCHEMPDISCUS	42	42	0.0	100.0	0.0	4,991	11.4	118.8	11.4
SCHLERASK21	33	33	0.0	100.0	0.0	7,588	17.3	229.9	17.3

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SCHLERASW15	35	30	9.2	84.6	7.8	867	24.3	29.3	22.5
SCHLERASW19	58	57	3.6	97.7	3.6	4,089	16.9	72.1	16.5
SCHLERASW20	94	93	2.8	98.5	2.7	6,320	17.6	68.3	17.4
SCHLERK8	23	18	12.5	80.0	10.0	527	35.2	28.6	32.8
SCHLERKA6	75	45	15.0	60.6	9.1	1,715	20.1	37.8	13.4
SCWZERG164	201	156	8.7	77.7	6.8	57,837	14.2	370.4	11.2
SCWZERSG1	754	598	9.3	79.3	7.4	68,115	74.0	113.9	73.4
SCWZERSG2	562	313	12.9	55.8	7.2	66,791	19.8	213.1	15.0
SEMO MODELT	27	18	38.5	66.7	25.7	180	38.5	10.0	0.0
SKRSKYS55	29	14	44.4	46.7	20.7	924	47.4	68.3	16.5
SKRSKYS58	65	17	72.8	26.2	19.1	2,241	77.8	131.6	27.4
SKRSKYS58T	35	19	41.0	55.0	22.6	7,227	51.3	375.5	30.9
SKRSKYS61	29	11	27.5	38.1	10.5	10,817	34.2	978.2	20.3
SKRSKYS76	148	138	6.5	93.5	6.1	72,058	17.5	520.6	16.2
SLINDS100	294	227	11.6	77.1	9.0	15,069	18.5	66.4	14.4
SMITH 600	360	336	5.2	93.3	4.9	54,405	13.5	162.0	12.5
SNIAS 350	229	193	11.2	84.3	9.4	98,598	18.7	511.0	15.0
SNIAS SA341	25	13	38.7	53.8	20.9	1,904	57.7	141.4	42.8
SOCATAMS894	36	31	6.7	86.2	5.8	2,208	12.8	71.1	10.9
SOCATARALLYE	16	16	0.0	100.0	0.0	1,204	17.3	75.3	17.3
SOCATATB10	40	40	0.0	100.0	0.0	3,966	54.3	99.2	54.3

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SOCATATB20	100	100	0.0	100.0	0.0	14,988	14.2	149.9	14.2
SPHRTHCIRRUS	97	87	4.5	90.0	4.1	6,052	12.5	69.3	11.6
SPHRTHNIMBUS	51	45	11.9	88.0	10.5	3,607	23.9	80.4	20.7
SPHRTHVENTUS	44	44	0.0	100.0	0.0	5,357	18.3	121.7	18.3
STBROSSD3	16	0	0.0	0.0	0.0	0	0.0	0.0	0.0
STNSON10	151	29	30.2	19.2	5.8	562	48.2	19.4	37.6
STNSONJR	20	12	27.8	58.3	16.2	170	34.4	14.6	20.2
STNSONL5	116	39	21.3	33.4	7.1	2,117	32.7	54.6	24.8
STNSONSR9	26	7	31.1	28.6	8.9	186	44.1	25.0	31.2
STNSONV77	103	42	25.4	40.4	10.3	1,304	29.9	31.4	15.7
STOLAMRC3	215	99	16.7	46.2	7.7	4,285	29.9	43.2	24.8
SUPAC LA	92	17	28.0	18.7	5.2	838	38.4	48.7	26.3
SUPAC V	29	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SWRNGNSA226	164	139	10.1	84.5	8.6	99,401	34.7	712.5	33.3
SWRNGNSA227	77	77	0.0	100.0	0.0	84,629	20.3	1,099.1	20.3
SWRNGNSA26	86	50	37.1	58.3	21.6	9,345	40.2	186.3	15.6
TCRAFKD	285	88	32.3	30.8	10.0	4,691	40.2	53.4	23.9
TCRAFTA	33	7	45.0	22.7	10.2	378	58.0	50.4	36.7
TCRAFTBC	1,741	823	14.7	47.3	7.0	50,225	19.6	61.0	12.9
TCRAFTBF	36	20	21.8	56.5	12.3	820	24.3	40.3	10.8
TCRAFTBL	216	95	16.9	44.1	7.5	4,488	21.0	47.1	12.4

2.2 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
TEMCO 11A	29	10	29.7	35.9	10.7	638	32.5	61.3	13.2
TH55	30	16	12.6	52.0	6.5	4,327	30.6	277.3	27.9
THUNDRAX7	84	72	12.0	85.3	10.3	3,240	20.4	45.2	16.5
TMPSONNAVION	608	406	7.1	66.7	4.7	29,277	13.2	72.1	11.1
TRYTEK65	324	178	12.5	54.8	6.5	10,072	23.7	56.7	20.1
TRYTEKK	31	9	36.6	29.2	10.7	127	39.6	14.0	15.0
UNIVACGC1	663	355	11.4	53.5	6.1	19,846	17.1	56.0	12.7
UNIVAR108	1,940	937	15.7	48.3	7.6	56,124	21.0	59.9	13.9
UNIVAR415	2,222	1,367	11.2	61.5	6.9	66,711	20.8	48.8	17.5
VALENT17	23	23	0.0	100.0	0.0	989	23.7	43.0	23.7
VARGA 2150	135	119	11.4	88.3	10.0	8,789	25.0	73.7	22.2
WACO ASO	27	9	15.2	33.3	5.1	342	20.5	38.0	13.7
WACO GXE	36	7	24.3	20.3	4.9	368	33.9	50.2	23.6
WACO R	28	9	19.8	33.3	6.6	226	23.5	24.3	12.8
WACO UFF7	161	80	12.6	49.7	6.3	7,793	29.2	97.4	26.4
WACO YK	50	14	25.9	27.5	7.1	370	32.2	26.9	19.2
WSK M18	34	33	12.8	95.7	12.3	9,528	85.4	292.9	84.4
WTHRLY201	61	45	16.4	73.0	12.0	11,316	26.9	254.2	21.3
TOTAL	259,434	210,266	0.5	81.0	0.4	33,593,472	1.7	153.6	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

2.3 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALASKAN	8,849	6,309	7.3	71.3	6.9	986,272	9.4	145.6	10.5
CENTRAL	14,782	12,150	5.9	82.2	6.6	1,984,899	9.1	161.3	8.6
EASTERN	30,250	23,927	4.0	79.1	4.3	3,848,480	5.2	151.0	4.4
GREAT LAKES	46,080	37,435	3.1	81.2	3.4	5,327,235	4.3	136.3	3.8
NEW ENGLAND	11,134	9,600	6.7	86.2	8.0	1,405,303	9.5	142.5	7.1
NORTHWEST MT	24,337	19,914	4.5	81.8	5.0	2,906,452	6.3	139.9	5.3
SOUTHERN	41,610	34,630	3.3	83.2	3.7	6,000,634	4.3	168.8	4.8
SOUTHWESTERN	35,445	29,506	3.6	83.2	4.1	5,217,235	4.8	171.2	5.8
WESTERN-PACIFIC	46,948	36,794	3.1	78.4	3.3	5,678,238	4.4	148.4	4.7
TOTAL	259,434	210,266	0.5	81.0	0.4	33,497,284	1.8	152.5	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.4 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALABAMA	3,126	2,539	13.2	81.2	14.6	411,117	16.5	160.4	13.5
ALASKA	8,849	6,309	7.3	71.3	6.9	986,272	9.4	145.6	10.5
ARIZONA	6,477	5,118	9.1	79.0	9.8	826,617	12.1	158.6	9.3
ARKANSAS	2,755	2,354	13.4	85.4	15.9	430,788	16.6	166.9	12.2
CALIFORNIA	37,065	28,910	3.6	78.0	3.8	4,175,077	4.3	140.1	5.2
COLORADO	4,606	3,782	11.0	82.1	12.4	660,601	13.6	169.3	11.3
CONNECTICUT	2,610	2,231	14.4	85.5	16.9	352,894	18.0	153.9	12.5
DELAWARE	1,269	1,112	19.4	87.6	23.6	164,914	25.7	142.0	16.9
DIST. OF COLUMBIA	157	35	102.9	22.1	26.4	10,527	118.4	312.3	23.4
FLORIDA	16,649	13,831	5.5	83.1	6.2	2,468,243	6.7	176.3	9.3
GEORGIA	6,025	4,974	9.3	82.6	10.4	754,987	11.7	149.9	11.8
HAWAII	729	600	25.5	82.3	29.3	426,458	31.3	621.2	20.7
IDAHO	2,396	1,836	15.5	76.6	15.9	254,398	20.9	136.3	13.8
ILLINOIS	8,799	7,276	7.7	82.7	8.6	997,380	9.0	134.9	8.8
INDIANA	5,014	4,229	10.2	84.3	11.8	561,943	11.8	126.8	9.8
IOWA	3,097	2,615	13.0	84.4	15.0	368,461	19.8	132.3	10.4
KANSAS	4,203	3,500	11.1	83.3	12.7	759,750	18.7	214.7	20.3
KENTUCKY	2,048	1,740	15.7	85.0	18.3	307,045	17.5	163.6	11.7
LOUISIANA	3,660	3,250	11.4	88.8	13.9	973,138	13.0	282.7	11.9
MAINE	1,642	1,307	18.1	79.6	19.4	203,094	29.3	155.8	22.6
MARYLAND	3,706	3,032	12.1	81.8	13.4	451,955	15.1	145.1	11.4
MASSACHUSETTS	4,019	3,687	11.2	91.7	14.4	549,758	15.5	143.6	13.1
MICHIGAN	8,598	6,771	8.1	78.8	8.6	936,805	11.1	128.3	9.3

2.4 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MINNESOTA	6,082	5,040	9.3	82.9	10.6	613,958	13.1	124.7	10.2
MISSISSIPPI	2,292	1,897	14.9	82.8	16.9	489,915	17.6	251.7	14.2
MISSOURI	5,173	4,068	10.3	78.6	11.0	601,992	12.1	147.6	9.6
MONTANA	2,112	1,808	15.8	85.6	18.6	197,857	20.5	103.3	12.3
NEBRASKA	2,310	1,967	15.0	85.2	17.5	254,696	18.4	133.3	9.7
NEVADA	2,561	2,074	14.4	81.0	15.9	250,085	24.6	118.1	19.7
NEW HAMPSHIRE	1,583	1,270	18.0	80.2	19.6	139,729	23.2	107.3	12.0
NEW JERSEY	4,741	3,755	10.8	79.2	11.5	607,858	12.1	156.3	9.3
NEW MEXICO	2,799	2,224	14.4	79.4	15.5	366,547	21.1	172.2	20.0
NEW YORK	7,636	5,804	8.6	76.0	8.7	1,023,550	10.2	159.5	11.6
NORTH CAROLINA	5,577	4,688	9.8	84.1	11.2	719,114	12.4	145.4	9.5
NORTH DAKOTA	1,776	1,487	17.4	83.7	19.8	167,730	21.5	112.2	12.8
OHIO	8,983	7,388	7.6	82.2	8.5	1,277,995	8.9	162.3	8.6
OKLAHOMA	5,288	4,254	10.2	80.5	11.1	675,673	12.5	156.9	12.9
OREGON	5,150	4,126	10.3	80.1	11.1	614,267	13.1	137.4	14.6
PENNSYLVANIA	7,395	5,808	8.6	78.5	9.1	881,320	10.4	143.4	6.8
RHODE ISLAND	557	486	31.3	87.2	37.6	100,447	38.0	196.7	23.1
SOUTH CAROLINA	2,385	1,988	15.2	83.4	17.3	314,221	19.1	154.5	21.0
SOUTH DAKOTA	1,420	1,192	19.6	83.9	22.4	142,063	29.6	117.0	13.6
TENNESSEE	3,410	2,900	12.4	85.0	14.5	508,434	14.6	170.1	13.5
TEXAS	20,943	17,424	4.8	83.2	5.5	2,771,089	6.1	154.5	8.6
UTAH	1,381	1,246	19.1	90.2	24.0	247,448	24.6	187.8	15.9
VERMONT	724	619	26.8	85.5	32.1	59,382	32.3	97.2	15.5

2.4 1988 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
VIRGINIA	4,008	3,291	11.5	82.1	12.8	550,605	14.8	156.0	12.5
WASHINGTON	7,725	6,281	8.3	81.3	9.1	828,096	11.6	129.0	9.4
WEST VIRGINIA	1,336	1,091	20.6	81.6	22.8	157,751	26.9	133.9	17.5
WISCONSIN	5,409	4,053	10.3	74.9	10.3	629,361	13.3	144.0	10.2
WYOMING	966	835	23.1	86.5	27.8	103,784	32.5	119.9	17.7
PUERTO RICO	97	72	76.4	74.9	77.9	9,045	107.5	121.2	17.2
OTHER U.S. TERRITORIES	115	92	68.5	80.1	74.1	18,513	75.3	172.7	19.0
TOTAL	259,434	210,266	0.5	81.0	0.4	33,354,747	12.1	153.6	1.7

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.5 1988 GENERAL AVIATION TOTAL NUMBER OF LANDINGS BY AIRCRAFT TYPE
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING										
FIXED WING - PISTON										
1 ENG: 1-3 SEATS	301,947	894,718	1,269,401	2,840,547	912,994	1,918,732	2,808,747	2,442,560	3,543,118	16,932,764
% STD. ERROR	19.6	22.1	15.2	13.8	32.5	21.0	16.2	14.7	19.0	6.7
1 ENG: 4+ SEATS	782,160	998,976	1,976,353	2,738,002	774,994	1,698,578	2,750,256	3,054,820	2,655,818	17,429,957
% STD. ERROR	24.9	16.1	12.8	9.4	17.0	13.4	13.7	18.6	10.6	5.1
1 ENGINE: TOTAL	1,084,107	1,893,694	3,245,754	5,578,549	1,687,988	3,617,310	5,559,003	5,497,380	6,198,936	34,362,721
% STD. ERROR	18.8	13.4	9.8	8.4	19.3	12.8	10.6	12.2	11.8	4.2
2 ENG: 1-6 SEATS	19,036	89,085	218,562	354,103	111,476	101,234	684,422	296,539	283,153	2,157,610
% STD. ERROR	65.6	29.0	22.5	17.0	37.4	31.8	21.1	24.1	21.4	9.2
2 ENG: 7+ SEATS	75,920	90,924	280,060	372,933	66,424	92,561	307,582	164,899	318,920	1,770,223
% STD. ERROR	66.7	35.5	37.7	21.8	51.7	26.7	21.1	33.0	28.4	11.1
2 ENGINE: TOTAL	94,956	180,009	498,622	727,036	177,900	193,795	992,004	461,438	602,073	3,927,833
% STD. ERROR	55.0	23.0	23.3	13.9	30.4	21.0	15.9	19.4	18.1	7.1
PISTON: OTHER	116	0	21,284	0	0	16	38,236	1,650	1,379	62,681
% STD. ERROR	387.4	0.0	235.9	0.0	0.0	3168.0	79.4	0.0	160.2	93.7
PISTON: TOTAL	1,179,179	2,073,703	3,765,660	6,305,585	1,865,888	3,811,121	6,589,243	5,960,468	6,802,388	38,353,235
% STD. ERROR	17.8	12.4	9.1	7.6	17.7	12.2	9.3	11.4	10.9	3.8
FIXED WING - TURBOPROP										
2 ENG: 1-12 SEATS	8,949	77,391	235,670	349,590	21,972	71,696	352,488	152,022	161,058	1,430,836
% STD. ERROR	85.2	33.3	31.6	29.2	54.6	33.7	19.0	29.4	38.1	11.6
2 ENG: 13+ SEATS	0	76,766	263,020	18,040	29,882	139,053	108,630	66,894	165,290	867,575
% STD. ERROR	0.0	70.7	52.5	24.2	37.0	37.8	45.8	46.2	33.0	20.4
2 ENGINE: TOTAL	8,949	154,157	498,690	367,630	51,854	210,749	461,118	218,916	326,348	2,298,411
% STD. ERROR	85.2	39.0	31.5	27.8	31.5	27.5	18.1	24.8	25.1	10.6
TURBOPROP: OTHER	15,138	109	174	18,634	0	3,684	20,284	15,929	45,296	119,248
% STD. ERROR	123.7	414.8	322.2	47.6	0.0	160.7	72.1	78.0	57.6	32.6
TURBOPROP: TOTAL	24,087	154,266	498,864	386,264	51,854	214,433	481,402	234,845	371,644	2,417,659
% STD. ERROR	83.9	38.9	31.5	26.5	31.5	27.1	17.6	23.7	23.2	10.2

2.5 1988 GENERAL AVIATION TOTAL NUMBER OF LANDINGS BY AIRCRAFT TYPE
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	626	87,256	217,502	318,977	42,415	41,903	160,545	242,073	97,568	1,208,865
% STD. ERROR	208.4	27.4	17.1	15.7	47.1	35.4	24.2	32.5	22.0	9.5
TURBOJET: OTHER	0	3,887	32,100	17,440	1,453	4,414	10,067	10,528	9,247	89,136
% STD. ERROR	0.0	95.5	41.1	40.8	109.3	65.5	50.1	81.8	40.3	21.4
TURBOJET: TOTAL	626	91,143	249,602	336,417	43,868	46,317	170,612	252,601	106,815	1,298,001
% STD. ERROR	208.4	26.5	15.8	15.0	45.6	32.6	22.9	31.4	20.4	9.0
FIXED WING: TOTAL	1,203,892	2,319,112	4,514,126	7,028,266	1,961,610	4,071,871	7,241,257	6,447,914	7,280,847	42,068,895
% STD. ERROR	17.6	11.5	8.4	7.0	16.8	11.5	8.5	10.6	10.2	3.6
ROTORCRAFT										
PISTON	15,949	32,748	162,575	184,538	119,735	125,554	298,522	132,367	273,274	1,345,262
% STD. ERROR	30.8	43.1	19.9	30.6	41.5	33.4	27.6	42.7	21.6	11.1
TURBINE	27,105	124,348	760,310	281,061	162,054	412,194	304,913	691,164	1,240,247	4,003,396
% STD. ERROR	140.1	97.1	36.0	41.6	65.4	43.0	34.4	30.7	29.6	14.5
ROTORCRAFT: TOTAL	43,054	157,096	922,885	465,599	281,789	537,748	603,435	823,531	1,513,521	5,348,658
% STD. ERROR	88.9	77.4	29.9	27.9	41.5	33.9	22.1	26.6	24.6	11.2
OTHER	1,028	23,563	92,776	102,651	16,188	72,914	42,091	157,909	262,312	771,432
% STD. ERROR	270.7	50.3	34.2	33.4	87.9	43.2	58.5	70.0	35.9	20.6
TOTAL	1,247,974	2,499,771	5,529,787	7,596,516	2,259,587	4,682,533	7,886,783	7,429,354	9,056,680	48,188,985
% STD. ERROR	17.2	11.7	8.5	6.7	15.5	10.7	8.0	9.8	9.2	3.4

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.6 1988 GENERAL AVIATION NUMBER OF LANDINGS IN LOCAL FLIGHT BY AIRCRAFT TYPE
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING										
FIXED WING - PISTON										
1 ENG: 1-3 SEATS	197,871	756,490	1,045,520	2,341,511	738,205	1,505,074	2,441,374	2,206,570	2,995,984	14,228,599
% STD. ERROR	23.5	22.9	16.0	14.2	34.2	20.3	16.4	15.7	18.7	6.7
1 ENG: 4+ SEATS	211,134	637,007	1,300,163	1,837,808	478,739	1,065,299	1,734,006	2,118,026	1,560,332	10,942,514
% STD. ERROR	17.3	20.2	16.1	11.7	19.4	17.2	15.3	23.2	13.9	6.5
1 ENGINE: TOTAL	409,005	1,393,497	2,345,683	4,179,319	1,216,944	2,570,373	4,175,380	4,324,596	4,556,316	25,171,113
% STD. ERROR	14.4	15.5	11.4	9.5	22.1	13.8	11.5	13.9	13.2	4.8
2 ENG: 1-6 SEATS	6,396	17,165	76,376	111,813	41,549	41,450	276,112	126,047	107,988	804,896
% STD. ERROR	82.9	86.9	34.2	31.2	49.1	55.3	34.2	46.3	45.8	16.6
2 ENG: 7+ SEATS	2,096	24,326	55,588	71,902	23,422	12,428	54,732	34,316	130,245	409,055
% STD. ERROR	114.5	48.6	52.2	29.1	67.7	122.4	85.4	131.6	36.1	22.3
2 ENGINE: TOTAL	8,492	41,491	131,964	183,715	64,971	53,878	330,844	160,363	238,233	1,213,951
% STD. ERROR	68.6	45.9	29.6	22.1	39.8	51.1	31.8	46.0	28.6	13.3
PISTON: OTHER	99	0	14,020	0	0	16	696	220	609	15,660
% STD. ERROR	325.8	0.0	235.9	0.0	0.0	2253.6	237.8	0.0	223.7	211.7
PISTON: TOTAL	417,596	1,434,988	2,491,667	4,363,034	1,281,915	2,624,267	4,506,920	4,485,179	4,795,158	26,400,724
% STD. ERROR	14.2	15.1	10.9	9.1	21.1	13.6	10.9	13.5	12.6	4.6
FIXED WING - TURBOPROP										
2 ENG: 1-12 SEATS	1,256	20,877	26,961	9,782	2,543	9,225	23,758	11,224	10,633	116,259
% STD. ERROR	107.7	57.7	61.8	99.1	141.3	83.4	90.3	216.7	118.1	36.5
2 ENG: 13+ SEATS	0	533	5,953	2,196	15,005	42,268	5,371	949	37,512	109,787
% STD. ERROR	0.0	63.4	27.1	64.6	74.9	70.5	46.8	372.3	48.7	33.7
2 ENGINE: TOTAL	1,256	21,410	32,914	11,978	17,548	51,493	29,129	12,173	48,145	226,046
% STD. ERROR	107.7	56.3	50.9	81.8	67.2	59.8	74.1	201.9	46.1	24.9
TURBOPROP: OTHER	149	81	174	6,448	0	2,365	16,287	13,806	45,196	84,506
% STD. ERROR	225.3	409.7	317.2	88.6	0.0	194.4	76.0	89.2	58.6	38.5
TURBOPROP: TOTAL	1,405	21,491	33,088	18,426	17,548	53,858	45,416	25,979	93,341	310,552
% STD. ERROR	99.2	56.1	50.6	61.5	67.2	57.8	54.8	105.8	37.0	20.9

2.6 1988 GENERAL AVIATION NUMBER OF LANDINGS IN LOCAL FLIGHT BY AIRCRAFT TYPE
BY REGION OF BASED AIRCRAFT

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AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	206	7,604	13,036	9,738	976	3,379	6,396	22,465	2,366	66,166
% STD. ERROR	217.5	96.4	74.3	124.8	371.9	103.5	113.9	84.2	347.4	42.7
TURBOJET: OTHER	0	71	423	1,222	70	965	376	854	1,355	5,336
% STD. ERROR	0.0	519.7	230.8	226.5	203.8	118.8	225.7	479.5	128.7	103.7
TURBOJET: TOTAL	206	7,675	13,459	10,960	1,046	4,344	6,772	23,319	3,721	71,502
% STD. ERROR	217.5	95.6	72.3	113.7	347.3	84.8	108.3	83.0	225.8	40.3
FIXED WING: TOTAL	419,207	1,464,154	2,538,214	4,392,420	1,300,509	2,682,469	4,559,108	4,534,477	4,892,220	26,782,778
% STD. ERROR	14.2	14.8	10.8	9.1	20.8	13.3	10.8	13.4	12.4	4.5
ROTORCRAFT										
PISTON	10,163	30,490	144,795	171,476	94,663	109,785	199,293	124,003	217,924	1,102,592
% STD. ERROR	30.7	46.3	21.5	32.0	40.5	37.5	32.6	43.0	20.8	11.6
TURBINE	23,939	107,785	465,181	115,817	49,345	295,985	164,646	216,077	1,058,585	2,497,360
% STD. ERROR	146.6	104.5	41.3	44.9	50.7	50.8	36.4	33.8	31.9	17.9
ROTORCRAFT: TOTAL	34,102	138,275	609,976	287,293	144,008	405,770	363,939	340,080	1,276,509	3,599,952
% STD. ERROR	103.3	82.1	31.9	26.3	31.8	38.4	24.3	26.6	26.7	12.9
OTHER	1,028	21,325	90,017	88,244	14,933	71,804	38,991	142,044	253,077	721,463
% STD. ERROR	161.5	50.4	30.2	27.6	67.0	34.2	44.5	72.6	35.6	20.2
TOTAL	454,337	1,623,754	3,238,207	4,767,957	1,459,450	3,160,043	4,962,038	5,016,601	6,421,806	31,104,193
% STD. ERROR	15.2	15.1	10.4	8.5	18.8	12.4	10.1	12.4	10.9	4.2

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.7 1988 GENERAL AVIATION NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY AIRCRAFT TYPE
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING										
FIXED WING - PISTON										
1 ENG: 1-3 SEATS	103,322	134,303	222,344	493,964	174,421	407,742	362,558	228,208	539,827	2,666,689
% STD. ERROR	36.5	21.9	21.1	14.6	26.8	26.3	21.1	22.8	23.4	8.2
1 ENG: 4+ SEATS	568,508	361,715	675,326	899,770	295,395	633,797	1,015,959	935,179	1,096,120	6,481,769
% STD. ERROR	33.2	14.1	9.6	9.2	19.0	10.8	13.8	14.1	9.1	5.0
1 ENGINE: TOTAL	671,830	496,018	897,670	1,393,734	469,816	1,041,539	1,378,517	1,163,387	1,635,947	9,148,458
% STD. ERROR	28.7	11.9	8.9	7.9	15.6	12.2	11.6	12.1	9.9	4.3
2 ENG: 1-6 SEATS	12,629	71,761	142,069	242,776	69,452	59,728	410,909	169,360	175,718	1,354,402
% STD. ERROR	69.0	28.0	22.9	18.6	39.1	30.0	22.2	24.0	16.8	9.2
2 ENG: 7+ SEATS	73,623	66,438	223,202	300,773	42,839	80,270	252,637	129,914	184,296	1,353,992
% STD. ERROR	69.7	40.8	41.6	23.9	54.5	28.4	24.5	22.8	30.6	11.9
2 ENGINE: TOTAL	86,252	138,199	365,271	543,549	112,291	139,998	663,546	299,274	360,014	2,708,394
% STD. ERROR	60.3	24.4	26.9	15.6	31.9	20.7	16.6	16.8	17.7	7.5
PISTON: OTHER	16	0	7,263	0	0	0	37,457	1,430	696	46,862
% STD. ERROR	1487.0	0.0	235.6	0.0	0.0	0.0	89.6	0.0	272.0	80.5
PISTON: TOTAL	758,098	634,217	1,270,204	1,937,283	582,107	1,181,537	2,079,520	1,464,091	1,996,657	11,903,714
% STD. ERROR	26.3	10.7	10.1	7.2	14.0	11.0	9.5	10.2	8.7	3.7
FIXED WING - TURBOPROP										
2 ENG: 1-12 SEATS	7,723	56,503	209,289	340,532	19,492	61,539	327,503	140,875	150,415	1,313,871
% STD. ERROR	87.7	34.1	34.1	31.3	56.1	38.9	21.6	33.0	41.8	12.9
2 ENG: 13+ SEATS	0	75,946	256,411	15,828	17,090	97,759	96,870	65,772	128,013	753,689
% STD. ERROR	0.0	73.1	55.7	30.9	48.6	36.6	49.6	55.1	44.7	23.6
2 ENGINE: TOTAL	7,723	132,449	465,700	356,360	36,582	159,298	424,373	206,647	278,428	2,067,560
% STD. ERROR	87.7	44.4	34.3	29.9	37.5	27.0	20.1	28.6	30.5	11.9
TURBOPROP: OTHER	14,988	27	0	12,167	0	1,332	3,541	1,233	61	33,349
% STD. ERROR	124.7	610.0	0.0	60.8	0.0	188.7	164.7	95.0	290.7	63.3
TURBOPROP: TOTAL	22,711	132,476	465,700	368,527	36,582	160,630	427,914	207,880	278,489	2,100,909
% STD. ERROR	87.6	44.4	34.3	29.0	37.5	26.9	20.0	28.4	30.5	11.7

2.7 1988 GENERAL AVIATION NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY AIRCRAFT TYPE
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	420	79,746	204,146	308,716	41,426	38,515	153,896	219,220	95,130	1,141,215
% STD. ERROR	206.8	31.3	18.8	17.9	51.5	37.5	26.7	38.3	27.8	10.8
TURBOJET: OTHER	0	3,815	31,675	16,233	1,375	3,478	9,718	9,683	7,889	83,866
% STD. ERROR	0.0	98.6	49.6	47.7	124.0	79.6	54.7	90.6	44.1	25.3
TURBOJET: TOTAL	420	83,561	235,821	324,949	42,801	41,993	163,614	228,903	103,019	1,225,081
% STD. ERROR	206.8	30.2	17.5	17.2	50.0	35.0	25.3	36.9	25.9	10.2
FIXED WING: TOTAL	781,229	850,254	1,971,725	2,630,759	661,490	1,384,160	2,671,048	1,900,874	2,378,165	15,229,704
% STD. ERROR	25.7	11.0	10.6	7.0	12.9	10.0	8.2	9.6	8.2	3.4
ROTORCRAFT										
PISTON	6,104	2,295	18,019	12,052	25,794	18,933	93,968	6,497	52,318	235,980
% STD. ERROR	48.4	80.6	30.9	50.3	55.5	30.5	34.5	44.7	27.4	16.9
TURBINE	3,165	14,183	293,018	160,509	118,784	115,858	142,290	470,172	186,870	1,504,849
% STD. ERROR	121.2	73.7	50.0	51.3	81.6	46.0	43.8	39.3	36.9	19.2
ROTORCRAFT: TOTAL	9,269	16,478	311,037	172,561	144,578	134,791	236,258	476,669	239,188	1,740,829
% STD. ERROR	52.2	64.5	47.1	47.8	67.8	39.8	29.7	38.7	29.4	16.7
OTHER	0	2,009	2,597	12,875	1,244	1,385	2,999	8,339	8,532	39,980
% STD. ERROR	0.0	68.8	93.0	60.5	395.2	307.3	124.5	122.4	155.2	50.3
TOTAL	790,498	868,741	2,285,359	2,816,195	807,312	1,520,336	2,910,305	2,385,882	2,625,885	17,010,513
% STD. ERROR	25.4	10.8	11.2	7.2	16.1	9.8	7.9	10.9	7.9	3.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

CHAPTER III

PRIMARY USE

The general aviation fleet is used to provide an array of services, such as air taxi, air cargo, industrial, agricultural, business, personal, instructional, research, patrol and sport fishing. This chapter considers the major uses. Eleven primary use categories for general aviation aircraft are defined in the glossary section of Appendix E.

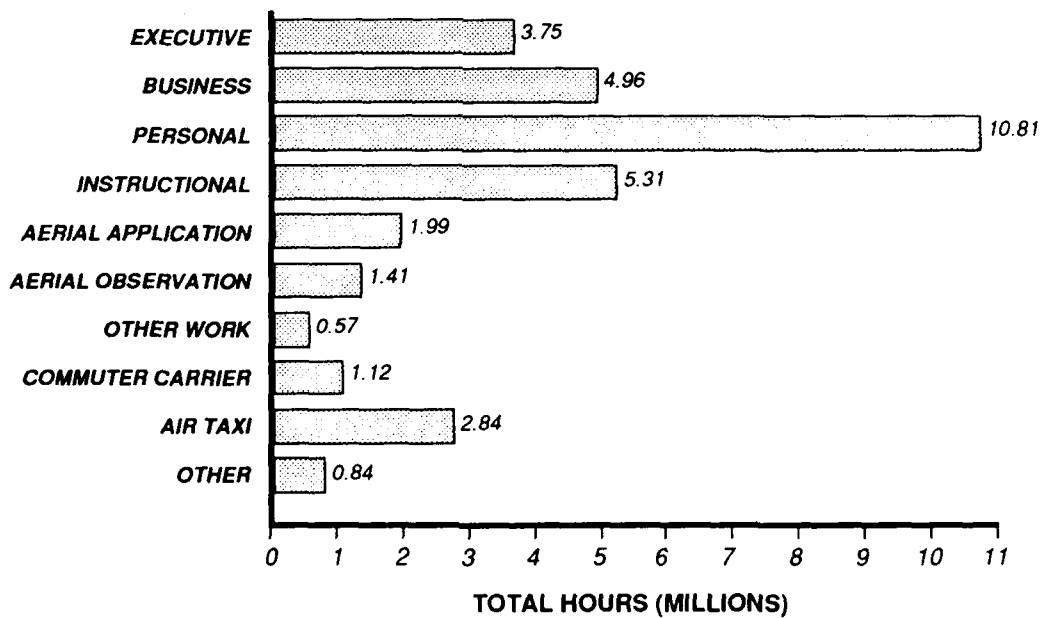
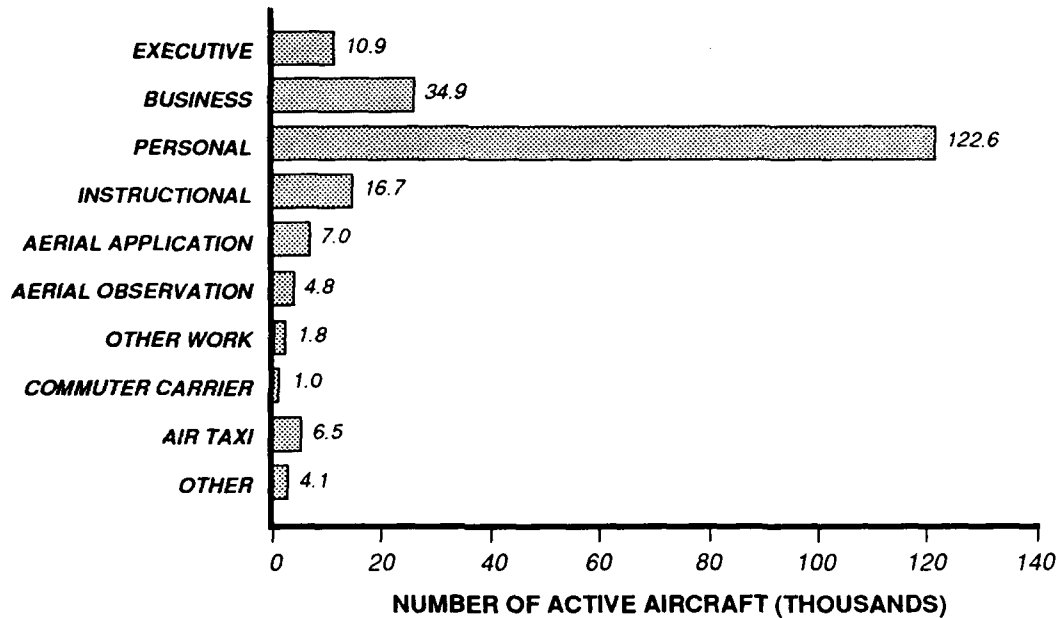
This chapter consists of three tables and three figures. Table 3.1 presents the estimated number of general aviation aircraft in-use and inactive, broken down by primary use category and aircraft type, and Table 3.2 presents the estimated total hours flown by aircraft type in each use category. The final table in this chapter, Table 3.3, provides data on the estimated number of nautical miles flown by primary use and aircraft type. Figure 3.1 displays data on the general aviation population's total hours flown by primary use. Figures 3.2 and 3.3 show, by aircraft type, the general aviation fleet's growth of total hours flown and growth of active general aviation fleet size for the years 1984 to 1988.

Some key observations to be drawn from the tables and figures in this chapter are:

- o More than 81 percent of the registered fleet is in-use.
- o The primary use of the general aviation fleet is personal. More than 58 percent of the active number of aircraft in the general aviation fleet are used for this purpose. The second and third most popular uses are business with 16 percent and instructional with 8 percent.
- o The general aviation fleet flew almost 11 million personal use hours in 1988. This figure is more than double the number of hours flown in the next closest use category, instructional use, which totaled more than 5 million hours.
- o About 62 percent of the active fixed wing piston aircraft are used for personal use, as well as 75 percent of the aircraft listed in the "Other" aircraft type category.
- o Of the active fixed wing piston aircraft, 14 percent are used for instructional purposes, and these aircraft account for 95 percent of the general aviation aircraft used for instructional purposes (8 percent of the active fleet).

- o More than 80 percent of the active turbojet and 62 percent of the active turboprop aircraft are used for executive purposes, and rotorcraft uses are relatively spread across the various use categories, with 15 percent, respectively, in each of the executive, personal, and air taxi categories.
- o The general aviation fleet flew more than 4 million nautical miles in 1988, with most of the nautical miles flown in the personal use category (more than 1.1 million) by the fixed wing piston aircraft group. The fixed wing piston aircraft also flew the most nautical miles of any aircraft group, 2.7 million of the 4 million flown by the general aviation fleet.
- o The trend for total flight time over this period is downward at an annual rate of 0.96 percent. Closer examination of the tables reveals that lower usage of fixed wing piston engine aircraft is largely responsible for the decline in hours. In contrast, twin engine turbojets have grown in both numbers and usage. In the rotorcraft area, piston-powered rotorcraft have risen in number and hours flown, while turbine-powered rotorcraft have declined in number from 1983 to 1988.

Figure 3.1
1988 GENERAL AVIATION NUMBER OF
AIRCRAFT AND TOTAL HOURS
BY PRIMARY USE



SOURCE: *Tables 3.1 and 3.2*

Figure 3.2
GROWTH OF GENERAL AVIATION TOTAL HOURS FLOWN
BY AIRCRAFT TYPE, 1984-1988
(Thousands of Hours)

Aircraft Type	Base Year 1983 (% Standard Error)	1984 (% Standard Error)	1985 (% Standard Error)	1986 (% Standard Error)	1987 (% Standard Error)	1988 (% Standard Error)	Compound Annual Growth Rate in %
FIXED WING							
1-Engine Piston 1-3 Seats	8,189 (4.9)	8,586 (3.8)	7,921 (3.7)	7,826 (3.7)	8,545 (3.8)	7,882 (4.0)	-0.76
1-Engine Piston 4+ Seats	14,959 (2.95)	14,919 (2.4)	14,931 (2.5)	14,112 (2.5)	13,596 (2.3)	14,065 (2.6)	-1.22
2-Engine Piston 1-6 Seats	3,013 (6.4)	2,984 (3.8)	2,725 (5.3)	2,798 (5.8)	2,635 (5.7)	2,298 (4.3)	-5.27
2-Engine Piston 7+ Seats	2,717 (8.7)	2,600 (6.4)	2,190 (6.4)	2,113 (7.4)	2,248 (9.0)	1,959 (7.4)	-6.33
Other Piston	32 (31.3)	102 (29.4)	26 (34.6)	11 (45.5)	15 (33.3)	22 (44.5)	-7.22
2-Engine Turboprop 1-12 Seats	1,431 (6.5)	1,715 (5.1)	1,465 (5.2)	1,648 (5.1)	1,483 (5.3)	1,558 (5.0)	1.72
2-Engine Turboprop 13+ Seats	659 (18.0)	736 (10.2)	551 (10.5)	1,149 (10.6)	511 (11.9)	728 (12.0)	2.01
Other Turboprop	83 (37.4)	54 (24.1)	64 (10.9)	85 (14.1)	183 (24.6)	84 (14.9)	0.24
2-Engine Turbojet	1,350 (6.8)	1,328 (5.0)	1,461 (4.8)	1,566 (4.9)	1,421 (4.2)	1,548 (4.7)	2.77
Other Turbojet	124 (25.0)	237 (13.5)	161 (10.6)	88 (21.6)	107 (10.3)	130 (10.9)	0.95
ROTORCRAFT							
Piston	572 (8.6)	591 (11.2)	564 (15.1)	804 (12.8)	652 (9.2)	576 (11.6)	0.14
Turbine	1,700 (8.9)	1,903 (6.3)	1,590 (8.9)	1,820 (7.8)	1,631 (9.6)	2,131 (7.6)	4.62
OTHER							
	420 (11.7)	358 (6.4)	414 (8.2)	394 (7.6)	416 (6.0)	613 (24.2)	7.86
TOTAL AIRCRAFT	35,249 (2.0)	36,118 (1.6)	34,063 (1.6)	34,416 (1.6)	33,443 (1.7)	33,593 (1.7)	-0.96

NOTE: Column summations may differ from printed totals due to estimation procedures.

* See Appendix A for an explanation of Percent Standard Error.

Figure 3.3
GROWTH OF ACTIVE GENERAL AVIATION FLEET
BY AIRCRAFT TYPE, 1984-1988
(Number of Aircraft)

Aircraft Type	Base Year 1983 (% Standard Error)	1984 (% Standard Error)	1985 (% Standard Error)	1986 (% Standard Error)	1987 (% Standard Error)	1988 (% Standard Error)	Compound Annual Growth Rate in %
FIXED WING							
1-Engine Piston 1-3 Seats	59,199 (1.7)	61,989 (1.2)	58,829 (1.4)	62,427 (1.3)	63,533 (1.2)	59,553 (1.3)	0.12
1-Engine Piston 4+ Seats	107,228 (0.7)	109,933 (0.6)	105,555 (0.7)	109,351 (0.6)	107,502 (0.6)	105,207 (0.6)	-0.38
2-Engine Piston 1-6 Seats	16,249 (1.9)	16,539 (1.4)	15,627 (1.9)	16,166 (1.8)	15,741 (1.7)	15,143 (1.8)	-1.40
2-Engine Piston 7+ Seats	8,660 (1.7)	8,719 (2.2)	8,032 (2.2)	7,555 (3.0)	7,566 (2.0)	7,554 (2.4)	-2.70
Other Piston	143 (9.8)	262 (13.4)	148 (21.0)	148 (24.3)	112 (25.0)	99 (21.2)	-7.09
2-Engine Turboprop 1-12 Seats	4,733 (1.5)	4,992 (0.9)	4,833 (2.2)	4,089 (2.0)	4,337 (2.1)	4,231 (1.8)	-2.22
2-Engine Turboprop 13+ Seats	578 (8.3)	640 (4.5)	607 (6.4)	970 (5.8)	723 (4.3)	826 (5.3)	7.40
Other Turboprop	142 (26.8)	176 (8.5)	167 (7.8)	185 (16.2)	214 (8.9)	202 (6.9)	7.30
2-Engine Turbojet	3,447 (2.7)	3,780 (1.3)	3,914 (1.7)	4,037 (1.6)	3,900 (1.6)	3,821 (2.1)	2.08
Other Turbojet	451 (20.2)	540 (8.3)	460 (7.2)	444 (16.2)	458 (4.8)	367 (5.4)	-4.04
ROTORCRAFT							
Piston	2,541 (7.5)	2,936 (6.3)	2,877 (7.0)	2,921 (6.0)	2,813 (5.0)	2,584 (7.9)	0.34
Turbine	3,998 (3.8)	4,160 (2.8)	3,541 (4.5)	4,022 (3.1)	3,520 (4.2)	3,822 (2.7)	-0.9
OTHER							
	5,923 (3.5)	6,275 (2.7)	6,263 (3.3)	7,010 (3.0)	6,783 (3.4)	6,857 (4.1)	2.97
TOTAL AIRCRAFT	213,293 (0.6)	220,943 (0.5)	210,654 (0.6)	220,044 (0.5)	217,183 (0.5)	210,226 (0.5)	-0.29

NOTE: Column summations may differ from printed totals due to estimation procedures.

* See Appendix A for an explanation of Percent Standard Error.

3.1 1988 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE
BY AIRCRAFT TYPE

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ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	EXECU- TIVE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS												
EST. NO. ACTIVE	59,553	68	2,151	40,543	8,364	5,558	1,349	504	1	0	1,017	24,978
% STD. ERROR	1.3	59.9	13.7	1.6	6.4	3.5	18.3	27.5	242.5	0.0	19.6	
EST. % ACTIVE	70.5											
1 ENG: 4+ SEATS												
EST. NO. ACTIVE	105,207	940	22,723	69,561	6,472	267	1,806	633	76	1,770	957	13,175
% STD. ERROR	0.6	22.7	4.0	1.5	8.4	43.2	16.4	28.5	39.8	15.4	21.0	
EST. % ACTIVE	88.9											
1 ENGINE: TOTAL												
EST. NO. ACTIVE	164,760	1,008	24,874	110,104	14,835	5,825	3,156	1,137	77	1,770	1,974	38,153
% STD. ERROR	0.6	21.5	3.8	1.1	5.1	3.9	12.2	20.0	39.4	15.4	14.3	
EST. % ACTIVE	81.2											
2 ENG: 1-6 SEATS												
EST. NO. ACTIVE	15,143	1,253	6,315	4,849	852	191	382	10	106	798	387	2,368
% STD. ERROR	1.8	17.2	5.8	7.1	17.9	43.2	30.0	135.1	69.2	20.2	25.2	
EST. % ACTIVE	86.5											
2 ENG: 7+ SEATS												
EST. NO. ACTIVE	7,554	1,009	2,305	1,318	165	54	126	41	264	2,052	198	1,252
% STD. ERROR	2.4	19.5	13.0	18.7	59.1	46.9	27.0	90.4	35.7	12.4	31.0	
EST. % ACTIVE	85.8											
2 ENGINE: TOTAL												
EST. NO. ACTIVE	22,698	2,262	8,620	6,167	1,016	245	508	51	370	2,850	585	3,619
% STD. ERROR	1.4	12.9	5.5	6.9	17.8	35.2	23.5	77.1	32.3	10.6	19.7	
EST. % ACTIVE	86.2											
PISTON: OTHER												
EST. NO. ACTIVE	99	0	0	2	0	23	0	0	4	55	15	82
% STD. ERROR	21.7	0.0	0.0	302.1	0.0	0.0	0.0	0.0	209.3	28.7	99.6	
EST. % ACTIVE	54.5											
PISTON: TOTAL												
EST. NO. ACTIVE	187,556	3,270	33,495	116,273	15,851	6,093	3,664	1,188	451	4,675	2,574	41,855
% STD. ERROR	0.6	11.1	3.2	1.1	4.9	4.0	11.0	19.4	27.4	8.7	11.9	
EST. % ACTIVE	81.8											

3.1 1988 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE
BY AIRCRAFT TYPE

PAGE 2 OF 3

ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	EXECU- TIVE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS												
EST. NO. ACTIVE	4,231	2,916	587	89	4	10	0	0	153	354	119	312
% STD. ERROR	1.8	5.1	19.7	58.1	354.4	231.4	0.0	0.0	25.2	24.6	44.5	
EST. % ACTIVE	93.1											
2 ENG: 13+ SEATS												
EST. NO. ACTIVE	826	314	44	6	5	0	12	8	245	130	61	184
% STD. ERROR	5.3	14.3	49.0	158.1	176.9	0.0	57.1	125.4	18.3	30.1	30.2	
EST. % ACTIVE	81.8											
2 ENGINE: TOTAL												
EST. NO. ACTIVE	5,057	3,229	631	95	9	10	12	8	398	484	181	496
% STD. ERROR	1.8	4.8	18.6	55.3	190.1	231.4	57.1	125.4	14.9	19.7	31.1	
EST. % ACTIVE	91.1											
TURBOPROP: OTHER												
EST. NO. ACTIVE	202	10	17	34	0	104	1	0	4	0	31	28
% STD. ERROR	7.1	99.2	48.7	48.4	0.0	15.9	314.3	0.0	161.6	0.0	53.7	
EST. % ACTIVE	87.8											
TURBOPROP: TOTAL												
EST. NO. ACTIVE	5,259	3,240	648	129	9	114	14	8	402	484	212	524
% STD. ERROR	1.7	4.8	18.2	42.6	190.1	24.6	58.9	125.4	14.8	19.7	27.7	
EST. % ACTIVE	90.9											
FIXED WING - TURBOJET												
2 ENGINE: TOTAL												
EST. NO. ACTIVE	3,821	3,067	183	72	7	0	7	0	5	395	85	240
% STD. ERROR	2.1	2.9	29.4	29.7	85.1	0.0	91.6	0.0	105.7	17.5	38.7	
EST. % ACTIVE	94.1											
TURBOJET: OTHER												
EST. NO. ACTIVE	367	271	14	7	4	0	0	0	0	3	68	127
% STD. ERROR	5.5	7.8	73.0	93.2	152.5	0.0	0.0	0.0	0.0	146.8	28.7	
EST. % ACTIVE	74.2											
TURBOJET: TOTAL												
EST. NO. ACTIVE	4,187	3,337	197	79	11	0	7	0	5	398	153	368
% STD. ERROR	2.0	2.8	27.8	28.3	76.9	0.0	91.6	0.0	105.7	17.4	25.0	
EST. % ACTIVE	91.9											

3.1 1988 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	ACTIVE USE											IN- ACTIVE
	TOTAL ACTIVE	EXECU- TIVE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	
FIXED WING: TOTAL												
EST. NO. ACTIVE	197,003	9,847	34,340	116,481	15,871	6,207	3,685	1,196	858	5,557	2,939	42,746
& STD. ERROR	0.6	4.1	3.1	1.1	4.9	3.9	11.0	19.3	16.0	7.6	10.7	
EST. % ACTIVE	82.2											
ROTORCRAFT												
PISTON												
EST. NO. ACTIVE	2,584	17	212	821	294	454	404	65	5	14	298	2,750
& STD. ERROR	7.9	54.9	24.2	12.8	19.0	25.0	23.7	66.8	129.6	76.8	35.0	
EST. % ACTIVE	48.4											
TURBINE												
EST. NO. ACTIVE	3,822	974	256	114	40	381	369	173	108	948	460	612
& STD. ERROR	2.7	14.3	30.0	48.1	80.3	21.9	28.4	33.7	57.4	15.0	21.9	
EST. % ACTIVE	86.2											
ROTORCRAFT: TOTAL												
EST. NO. ACTIVE	6,406	991	468	935	334	835	772	238	113	962	758	3,362
& STD. ERROR	3.6	14.1	19.8	12.7	19.3	16.9	18.3	30.5	55.1	14.8	19.1	
EST. % ACTIVE	65.6											
OTHER												
EST. NO. ACTIVE	6,857	44	110	5,141	468	0	302	407	2	0	384	3,060
& STD. ERROR	4.1	49.5	58.8	4.0	23.2	0.0	38.8	30.7	126.1	0.0	26.2	
EST. % ACTIVE	69.1											
TOTAL												
EST. NO. ACTIVE	210,266	10,882	34,918	122,557	16,674	7,042	4,759	1,841	973	6,518	4,081	49,168
& STD. ERROR	0.5	4.0	3.1	1.1	4.8	4.0	9.3	14.8	15.5	6.9	8.8	
EST. % ACTIVE	81.0											

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE AIRCRAFT DID NOT REPORT USE.

3.2 1988 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE
BY AIRCRAFT TYPE

PAGE 1 OF 3

PRIMARY USE

AIRCRAFT TYPE	EXECUTIVE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - PISTON											
1 ENG: 1-3 SEATS											
EST. TOT. HOURS	39,815	200,854	2,756,169	2,977,925	1,504,671	259,844	86,006	15	0	56,641	7,881,938
% STD. ERROR	56.9	19.2	4.3	9.3	6.2	30.5	33.1	242.5	0.0	27.8	4.0
1 ENG: 4+ SEATS											
EST. TOT. HOURS	201,036	3,004,326	7,007,014	1,936,715	126,222	656,408	164,451	67,092	709,953	191,296	14,064,513
% STD. ERROR	24.0	5.8	3.4	11.6	47.3	22.2	30.1	40.6	18.0	23.6	2.6
1 ENGINE: TOTAL											
EST. TOT. HOURS	240,851	3,205,181	9,763,187	4,914,638	1,630,893	916,253	250,457	67,106	709,953	247,938	21,946,450
% STD. ERROR	22.3	5.6	2.7	7.2	6.3	17.6	22.0	40.2	18.0	17.2	2.2
2 ENG: 1-6 SEATS											
EST. TOT. HOURS	296,126	886,668	501,881	179,591	67,432	63,874	286	30,340	233,269	38,678	2,298,145
% STD. ERROR	18.9	7.3	9.7	20.9	42.4	40.4	132.0	79.4	22.5	33.6	4.3
2 ENG: 7+ SEATS											
EST. TOT. HOURS	244,062	497,701	147,757	13,047	4,563	33,042	6,984	234,954	758,736	18,412	1,959,259
% STD. ERROR	21.4	18.4	29.3	65.0	49.1	29.6	83.7	37.2	13.2	30.5	7.4
2 ENGINE: TOTAL											
EST. TOT. HOURS	540,188	1,384,369	649,638	192,638	71,995	96,916	7,270	265,294	992,005	57,090	4,257,404
% STD. ERROR	14.2	7.5	9.8	20.8	35.1	30.3	67.4	33.2	11.3	24.9	4.1
PISTON: OTHER											
EST. TOT. HOURS	0	0	85	0	1,142	0	0	3,513	17,388	71	22,199
% STD. ERROR	0.0	0.0	302.1	0.0	142.2	0.0	0.0	209.3	35.3	102.8	44.5
PISTON: TOTAL											
EST. TOT. HOURS	781,039	4,589,549	10,412,910	5,107,276	1,704,029	1,013,169	257,727	335,914	1,719,346	305,098	26,226,054
% STD. ERROR	11.9	4.5	2.6	7.0	6.2	16.1	21.4	28.3	10.1	14.7	2.0
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS											
EST. TOT. HOURS	945,395	180,251	9,706	1,608	3,220	0	0	225,003	158,696	33,850	1,557,729
% STD. ERROR	7.0	21.0	57.1	354.4	231.4	0.0	0.0	29.5	24.8	56.5	5.0

3.2 1988 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE
BY AIRCRAFT TYPE

PAGE 2 OF 3

PRIMARY USE

AIRCRAFT TYPE	EXECUTIVE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	TOTAL
2 ENG: 13+ SEATS											
EST. TOT. HOURS	115,439	7,063	288	1,140	0	3,195	6,785	420,572	147,635	26,232	728,349
% STD. ERROR	18.3	50.3	158.1	177.0	0.0	55.6	148.2	19.6	32.5	20.6	12.0
2 ENGINE: TOTAL											
EST. TOT. HOURS	1,060,833	187,315	9,994	2,748	3,220	3,195	6,785	645,575	306,331	60,082	2,286,078
% STD. ERROR	6.6	19.9	54.3	191.7	231.4	55.6	148.2	16.5	19.5	32.1	5.1
TURBOPROP: OTHER											
EST. TOT. HOURS	5,446	7,225	1,720	0	59,384	260	0	2,330	0	7,505	83,869
% STD. ERROR	107.6	48.7	48.5	0.0	18.7	314.3	0.0	161.6	0.0	59.7	14.9
TURBOPROP: TOTAL											
EST. TOT. HOURS	1,066,279	194,540	11,714	2,748	62,604	3,455	6,785	647,906	306,331	67,587	2,369,948
% STD. ERROR	6.6	19.4	40.8	191.7	26.4	57.5	148.2	16.3	19.5	28.7	5.0
FIXED WING - TURBOJET											
2 ENGINE: TOTAL											
EST. TOT. HOURS	1,233,023	84,936	10,051	14	0	1,720	0	2,805	193,028	22,647	1,548,225
% STD. ERROR	5.4	32.2	42.5	85.1	0.0	92.0	0.0	105.7	19.6	48.5	4.7
TURBOJET: OTHER											
EST. TOT. HOURS	112,932	5,548	186	175	0	0	0	0	1,200	9,487	129,528
% STD. ERROR	12.2	72.6	90.9	152.5	0.0	0.0	0.0	0.0	146.8	68.3	10.9
TURBOJET: TOTAL											
EST. TOT. HOURS	1,345,955	90,484	10,237	189	0	1,720	0	2,805	194,228	32,134	1,677,752
% STD. ERROR	5.0	30.2	37.5	105.6	0.0	92.0	0.0	105.7	19.5	36.8	4.4
FIXED WING: TOTAL											
EST. TOT. HOURS	3,193,274	4,874,572	10,434,860	5,110,213	1,766,633	1,018,344	264,512	986,625	2,219,906	404,819	30,273,750
% STD. ERROR	4.8	4.4	2.6	7.0	6.1	16.1	21.1	16.4	8.6	12.4	1.8
ROTORCRAFT											
PISTON											
EST. TOT. HOURS	2,813	20,101	48,665	129,129	94,523	185,640	10,164	1,185	5,392	78,343	575,955
% STD. ERROR	59.0	30.3	22.9	21.5	28.3	29.0	66.0	131.5	103.8	43.5	11.6

3.2 1988 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE
BY AIRCRAFT TYPE

PAGE 3 OF 3

PRIMARY USE

AIRCRAFT TYPE	EXECUTIVE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	TOTAL
TURBINE											
EST. TOT. HOURS	548,361	58,710	10,419	6,981	127,556	169,324	130,170	130,277	616,419	332,548	2,130,764
% STD. ERROR	21.3	44.8	49.2	60.0	26.2	36.1	38.3	57.6	21.4	26.1	7.6
ROTORCRAFT: TOTAL											
EST. TOT. HOURS	551,174	78,811	59,084	136,110	222,079	354,965	140,333	131,461	621,811	410,891	2,706,719
% STD. ERROR	21.1	27.8	20.5	21.4	19.6	22.9	35.7	55.0	21.1	22.8	6.5
OTHER											
EST. TOT. HOURS	3,999	6,747	319,393	63,019	0	38,417	161,811	81	0	19,533	612,998
% STD. ERROR	45.6	59.5	19.4	29.2	0.0	51.0	88.3	126.1	0.0	30.7	24.2
TOTAL	3,748,447	4,960,129	10,813,337	5,309,342	1,988,712	1,411,725	566,656	1,118,167	2,841,717	835,242	33,593,468
EST. TOT. HOURS	5.1	4.3	2.6	6.8	5.9	13.1	27.2	15.8	8.1	10.7	1.7
% STD. ERROR											

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS BECAUSE SOME ACTIVE AIRCRAFT DID NOT REPORT USE.

3.3 1988 GENERAL AVIATION NAUTICAL MILES FLOWN BY PRIMARY USE BY AIRCRAFT TYPE
(NAUTICAL MILES IN THOUSANDS)

PAGE 1 OF 2

PRIMARY USE

AIRCRAFT TYPE	EXECUTIVE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING											
FIXED WING - PISTON											
1 ENG: 1-3 SEATS	3,099	17,803	243,350	236,464	130,522	20,571	7,584	1	0	4,865	664,259
1 ENG: 4+ SEATS	17,379	359,225	759,560	167,164	12,511	61,666	18,912	7,274	71,996	18,484	1,494,170
1 ENGINE: TOTAL	20,477	377,028	1,002,909	403,628	143,033	82,237	26,496	7,275	71,996	23,349	2,158,429
2 ENG: 1-6 SEATS	40,296	132,357	76,029	16,931	11,054	10,341	38	4,560	34,995	4,593	331,197
2 ENG: 7+ SEATS	33,779	75,489	22,999	1,348	781	6,331	1,246	35,454	112,303	2,439	292,169
2 ENGINE: TOTAL	74,076	207,847	99,028	18,279	11,835	16,672	1,284	40,014	147,299	7,032	623,366
PISTON OTHER	0	0	19	0	213	0	0	742	3,709	12	4,696
PISTON TOTAL	94,553	584,875	1,101,956	421,907	155,082	98,909	27,780	48,032	223,003	30,393	2,786,491
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS	179,169	39,689	1,846	304	721	0	0	45,542	32,841	4,800	304,912
2 ENG: 13+ SEATS	22,196	1,759	54	209	0	801	1,256	79,632	31,106	3,143	140,156
2 ENGINE: TOTAL	201,365	41,448	1,901	513	721	801	1,256	125,174	63,947	7,943	445,068
TURBOPROP: OTHER	910	1,316	304	0	8,564	52	0	423	0	942	12,511
TURBOPROP: TOTAL	202,275	42,764	2,205	513	9,285	853	1,256	125,596	63,947	8,886	457,579

3.3 1988 GENERAL AVIATION NAUTICAL MILES FLOWN BY PRIMARY USE BY AIRCRAFT TYPE
(NAUTICAL MILES IN THOUSANDS)

PAGE 2 OF 2

PRIMARY USE

AIRCRAFT TYPE	EXECUTIVE	BUSINESS	PERSONAL	INSTRUCTIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - TURBOJET											
2 ENGINE: TOTAL	490,002	34,437	4,112	3	0	0	0	1,026	80,032	8,665	618,277
TURBOJET: OTHER	52,209	2,552	102	54	0	0	0	0	553	4,487	59,958
TURBOJET: TOTAL	542,211	36,988	4,215	58	0	0	0	1,026	80,585	13,152	678,235
FIXED WING: TOTAL	839,039	664,627	1,108,375	422,478	164,367	99,762	29,036	174,654	367,536	52,430	3,922,305
ROTORCRAFT											
PISTON	171	1,226	2,802	6,554	5,826	10,459	454	61	314	4,106	31,973
TURBINE	60,284	5,749	1,049	474	12,801	17,304	13,828	5,800	27,439	24,212	168,940
ROTORCRAFT: TOTAL	60,455	6,975	3,851	7,028	18,627	27,763	14,282	5,861	27,753	28,318	200,913
OTHER	41	213	13,615	1,757	0	0	0	0	0	231	15,856
TOTAL	899,536	671,815	1,125,841	431,263	182,994	127,525	43,318	180,515	395,288	80,979	4,139,075

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

CHAPTER IV

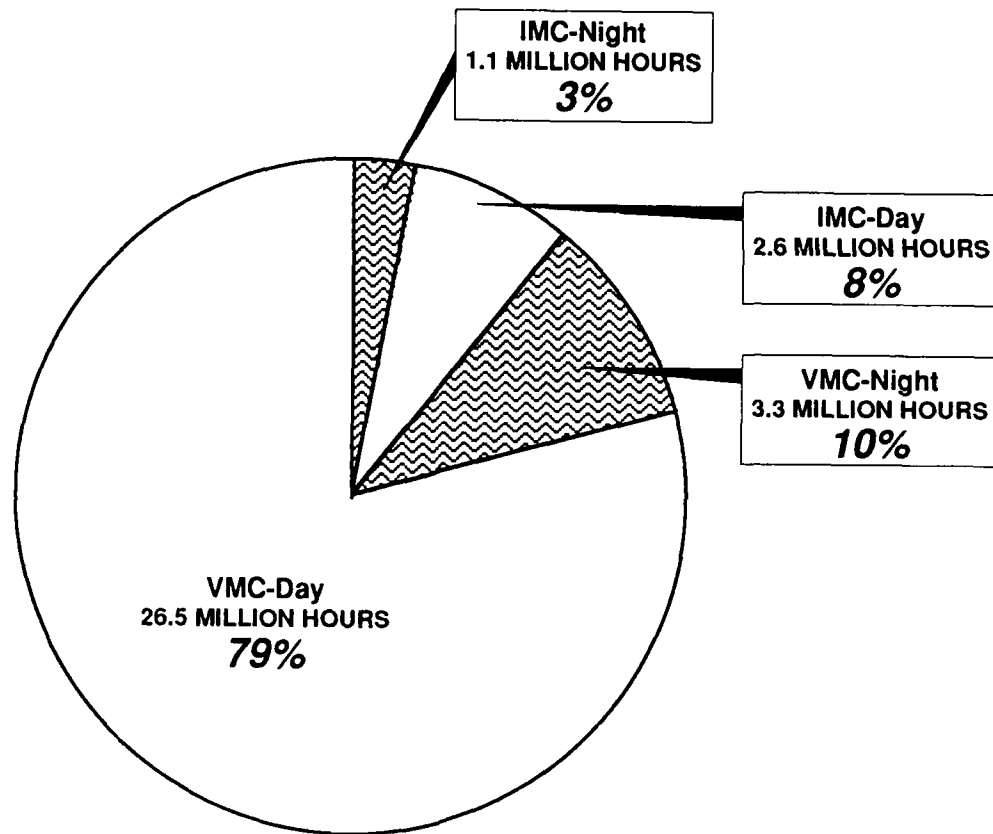
FLYING CONDITIONS

This chapter presents statistics on the meteorological conditions under which the general aviation fleet flies. Tables 4.1, 4.4, and 4.7 contain the number of active aircraft and total hours flown during the day and night by: aircraft type, region of based aircraft, and SDR Manufacturer/Model group, respectively. Tables 4.2 and 4.5 consider Visual Meteorological Conditions (VMC) by aircraft type and by region of based aircraft, and Tables 4.3 and 4.6 consider Instrument Meteorological Conditions (IMC), also by aircraft type and by region of based aircraft. The final table in this chapter, 4.8, looks at the general aviation active aircraft and total hours flown under both VMC and IMC conditions by SDR Manufacturer/Model Group. Figure 4.1, 1988 General Aviation Annual Hours Flown By Weather and Light Conditions, graphically depicts the findings of the above listed tables, proportionally showing the number of hours flown under VMC and IMC conditions by day and by night.

Some highlights of this chapter include:

- o Approximately 87 percent of general aviation flying takes place during the day, and day flying far outweighs night flying with all types of aircraft.
- o Fixed wing, single engine piston aircraft and rotorcraft spend the bulk of their flying time in VMC, with single engine piston aircraft flying 93 percent and rotorcraft aircraft flying 99 percent of their flight hours in VMC. In general, 89 percent of the flying under VMC takes place during the day.
- o Fixed wing piston aircraft with two engines, turboprops, and turbojets spend a considerable amount of time flying in IMC conditions, approximately 22, 25, and 38 percent, respectively, and IMC flying takes place 71 percent of the time during the day.
- o The overall results of these tables indicate that about 79 percent of the total hours flown by the 1988 general aviation fleet were flown in VMC conditions during the day. The remaining 21 percent of the total hours flown by the general aviation fleet were divided as follows: 10 percent VMC night, 8 percent IMC day, and 3 percent IMC night.

Figure 4.1
1988 GENERAL AVIATION TOTAL HOURS FLOWN
BY WEATHER AND LIGHT CONDITIONS



KEY

□ = Day
▨ = Night
IMC = Instrument Meteorological Conditions
VMC = Visual Meteorological Conditions

SOURCE: Tables 4.2 and 4.3

4.1 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY AIRCRAFT TYPE

AIRCRAFT TYPE	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING								
FIXED WING - PISTON								
1 ENG: 1-3 SEATS	59,553	0.0	7,368,512	3.8	23,065	2.9	510,271	8.0
1 ENG: 4+ SEATS	105,116	0.1	12,333,151	2.6	75,869	1.3	1,621,557	5.7
1 ENGINE: TOTAL	164,670	0.0	19,701,670	2.1	98,934	1.2	2,131,828	4.7
2 ENG: 1-6 SEATS	15,065	0.4	1,879,416	4.1	12,184	2.4	408,781	8.4
2 ENG: 7+ SEATS	7,530	0.3	1,547,838	7.4	6,731	2.5	438,032	10.1
2 ENGINE: TOTAL	22,595	0.3	3,427,255	4.0	18,915	1.8	846,813	6.6
PISTON: OTHER	99	0.5	13,290	40.2	62	28.7	6,514	27.4
PISTON: TOTAL	187,363	0.1	23,142,214	1.9	117,911	1.1	2,985,155	3.9
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS	4,201	0.5	1,122,735	5.2	4,197	0.6	421,360	9.4
2 ENG: 13+ SEATS	814	1.6	552,105	9.1	685	6.2	232,314	12.7
2 ENGINE: TOTAL	5,015	0.5	1,674,840	4.6	4,882	1.0	653,674	7.6
TURBOPROP: OTHER	202	0.2	66,247	17.3	79	25.3	17,702	30.0
TURBOPROP: TOTAL	5,217	0.5	1,741,087	4.5	4,962	1.1	671,376	7.4

4.1 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY AIRCRAFT TYPE

AIRCRAFT TYPE	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET								
2 ENGINE: TOTAL	3,816	0.3	1,145,238	4.4	3,750	0.9	376,298	7.4
TURBOJET: OTHER	367	0.1	81,991	9.9	294	6.8	23,544	10.9
TURBOJET: TOTAL	4,182	0.2	1,227,229	4.2	4,044	1.0	399,843	7.0
FIXED WING: TOTAL	196,763	0.1	26,110,532	1.7	126,916	1.0	4,056,375	3.2
ROTORCRAFT								
PISTON	2,584	0.0	494,242	10.1	1,292	10.1	85,191	28.0
TURBINE	3,822	0.0	1,887,467	7.8	2,255	7.4	257,096	16.1
ROTORCRAFT: TOTAL	6,406	0.0	2,381,708	6.5	3,546	6.0	342,287	14.0
OTHER	6,857	0.0	597,619	22.2	232	42.5	22,107	95.9
TOTAL	210,026	0.0	29,089,856	1.7	130,695	1.0	4,420,771	3.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.2 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	VMC DAY				VMC NIGHT				VMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS	59,488	0.1	7,300,980	3.8	22,536	3.0	483,789	8.2	59,488	0.1	7,786,096	3.8
1 ENG: 4+ SEATS	104,983	0.1	11,244,123	2.5	73,986	1.4	1,322,984	6.1	105,120	0.1	12,566,554	2.6
1 ENGINE: TOTAL	164,471	0.1	18,545,108	2.1	96,521	1.3	1,806,772	5.0	164,608	0.1	20,352,654	2.2
2 ENG: 1-6 SEATS	14,903	0.7	1,533,191	4.6	11,448	2.9	262,635	9.2	15,054	0.4	1,805,675	4.4
2 ENG: 7+ SEATS	7,404	1.1	1,248,535	8.6	6,284	3.8	272,805	11.5	7,429	1.1	1,521,471	7.5
2 ENGINE: TOTAL	22,307	0.6	2,781,726	4.6	17,732	2.3	535,440	7.4	22,483	0.4	3,327,146	4.2
PISTON: OTHER	99	0.5	12,879	41.5	26	34.8	2,096	4.5	99	0.5	14,975	35.9
PISTON: TOTAL	186,877	0.1	21,339,708	2.0	114,279	1.1	2,344,309	4.2	187,189	0.1	23,694,776	1.9
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS	3,950	2.2	847,818	6.2	3,875	2.5	257,443	10.8	3,980	2.1	1,105,143	6.1
2 ENG: 13+ SEATS	797	2.0	456,742	9.5	650	6.8	157,317	13.8	797	2.0	614,054	9.3
2 ENGINE: TOTAL	4,746	1.8	1,304,560	5.2	4,526	2.3	414,760	8.5	4,777	1.8	1,719,196	5.2
TURBOPROP: OTHER	202	0.2	64,063	18.0	71	26.8	14,802	32.1	202	0.2	78,782	14.5
TURBOPROP: TOTAL	4,948	1.8	1,368,623	5.0	4,597	2.3	429,562	8.3	4,978	1.7	1,797,978	5.0

4.2 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	VMC DAY				VMC NIGHT				VMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET												
2 ENGINE: TOTAL	3,303	2.7	757,513	6.0	3,009	3.7	177,419	9.8	3,322	2.7	937,791	6.1
TURBOJET: OTHER	319	5.9	56,759	14.6	248	10.2	13,573	16.0	319	5.9	70,332	13.9
TURBOJET: TOTAL	3,622	2.5	814,273	5.7	3,257	3.5	190,991	9.2	3,641	2.5	1,008,123	5.7
FIXED WING: TOTAL	195,447	0.1	23,522,610	1.8	122,133	1.1	2,964,863	3.6	195,809	0.1	26,500,876	1.8
ROTORCRAFT												
PISTON	2,584	0.0	492,899	10.1	1,231	10.5	84,747	28.2	2,584	0.0	577,419	9.8
TURBINE	3,822	0.0	1,874,178	7.8	2,186	7.7	247,131	16.6	3,822	0.0	2,120,203	7.3
ROTORCRAFT: TOTAL	6,406	0.0	2,367,076	6.5	3,417	6.2	331,877	14.3	6,406	0.0	2,697,622	6.1
OTHER	6,857	0.0	595,815	22.1	232	42.5	22,107	95.9	6,857	0.0	618,503	24.5
TOTAL	208,710	0.1	26,485,506	1.8	125,782	1.0	3,318,847	3.6	209,072	0.1	29,816,994	1.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.3 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	IMC DAY				IMC NIGHT				IMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS	2,611	13.0	68,034	27.8	1,805	15.7	26,229	30.6	3,248	11.6	94,109	23.4
1 ENG: 4+ SEATS	42,234	2.5	1,085,828	8.5	22,282	4.2	296,971	9.3	42,891	2.5	1,384,027	7.5
1 ENGINE: TOTAL	44,845	2.5	1,153,862	8.2	24,086	4.0	323,200	8.9	46,140	2.5	1,478,136	7.2
2 ENG: 1-6 SEATS	11,173	2.8	342,368	7.2	8,384	4.5	146,524	10.2	11,350	2.7	490,606	7.3
2 ENG: 7+ SEATS	6,179	3.7	299,734	11.4	5,335	5.3	165,881	14.3	6,202	3.7	465,645	10.7
2 ENGINE: TOTAL	17,351	2.3	642,102	6.6	13,719	3.4	312,405	9.0	17,552	2.2	956,250	6.4
PISTON: OTHER	22	2.2	411	0.1	58	30.7	4,418	39.5	58	30.7	4,829	36.1
PISTON: TOTAL	62,219	1.9	1,796,376	5.8	37,863	2.9	640,023	6.3	63,750	1.9	2,439,215	5.0
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS	4,051	1.5	276,943	9.3	3,959	2.0	164,407	14.2	4,108	1.2	440,733	8.9
2 ENG: 13+ SEATS	701	5.0	95,422	14.7	651	6.9	75,022	20.5	713	4.8	170,438	14.8
2 ENGINE: TOTAL	4,751	1.5	372,365	7.9	4,611	2.0	239,429	11.7	4,821	1.2	611,171	7.7
TURBOPROP: OTHER	54	28.9	2,183	53.0	48	34.1	2,938	39.9	54	28.9	5,084	41.7
TURBOPROP: TOTAL	4,805	1.5	374,547	7.8	4,659	2.0	242,367	11.6	4,875	1.3	616,256	7.6

4.3 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	IMC DAY			IMC NIGHT			IMC TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	3,699	1.0	386,867	11.4	3,675	197,300	12.1	3,745	0.7
TURBOJET: OTHER	324	5.3	25,021	21.5	266	9,992	17.9	324	5.3
TURBOJET: TOTAL	4,022	1.0	411,888	10.8	3,942	207,292	11.5	4,069	0.8
FIXED WING: TOTAL	71,046	1.7	2,582,812	4.5	46,464	1,089,682	5.0	72,693	1.7
ROTORCRAFT									
PISTON	14	97.1	1,321	111.9	65	450	119.4	75	82.8
TURBINE	368	16.2	13,481	24.8	341	9,882	41.7	496	18.3
ROTORCRAFT: TOTAL	382	16.0	14,802	24.7	406	10,332	40.2	571	19.2
OTHER	63	86.9	1,739	87.7	0	0	0.0	63	86.9
TOTAL	71,491	1.7	2,599,353	4.5	46,869	1,100,014	5.0	73,328	1.7
									3.9

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.4 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

REGION	DAY TOTAL			NIGHT TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR
ALASKAN	6,379	7.4	951,108	14.8	2,721	11.9
CENTRAL	12,059	6.0	1,668,601	10.2	7,714	7.8
EASTERN	23,831	4.1	3,235,216	6.4	16,439	5.1
GREAT LAKES	37,542	3.2	4,515,177	5.1	23,924	4.2
NEW ENGLAND	9,514	6.9	1,183,123	10.9	5,986	9.1
NORTHWEST MT	19,984	4.6	2,642,317	7.7	10,692	6.6
SOUTHERN	34,631	3.3	5,191,165	6.1	22,708	4.3
SOUTHWESTERN	28,867	3.7	4,557,682	7.2	16,776	5.1
WESTERN-PACIFIC	37,291	3.2	5,023,093	6.0	24,228	4.1
TOTAL	210,099	1.4	28,967,494	2.5	131,188	1.8
					4,458,382	4.4

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.5 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	VMC DAY				VMC NIGHT				VMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ALASKAN	6,378	7.4	931,082	14.8	2,631	12.0	39,189	21.2	6,378	7.4	970,276	14.8
CENTRAL	11,989	6.0	1,464,431	9.7	7,591	7.8	276,996	26.1	12,038	6.0	1,741,285	10.0
EASTERN	23,540	4.2	2,755,302	6.6	15,684	5.3	432,789	10.0	23,612	4.2	3,188,946	6.6
GREAT LAKES	37,237	3.2	4,050,486	5.2	22,705	4.3	611,843	11.4	37,342	3.2	4,660,939	5.5
NEW ENGLAND	9,491	6.9	1,065,723	11.2	5,768	9.2	163,790	18.6	9,491	6.9	1,229,854	11.5
NORTHWEST MT	19,867	4.6	2,447,954	7.8	10,244	6.7	232,732	13.5	19,869	4.6	2,680,645	7.8
SOUTHERN	34,347	3.4	4,649,293	6.4	21,722	4.4	553,065	8.8	34,405	3.4	5,205,524	6.2
SOUTHWESTERN	28,755	3.7	4,260,785	7.5	16,124	5.2	426,743	13.3	28,755	3.7	4,695,576	7.5
WESTERN-PACIFIC	37,167	3.2	4,757,267	6.1	23,804	4.2	616,210	12.6	37,167	3.2	5,372,312	6.1
TOTAL	208,770	1.4	26,382,338	2.5	126,272	1.9	3,353,354	4.8	209,056	1.4	29,745,380	2.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.6 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	IMC DAY			IMC NIGHT			IMC TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN
ALASKAN	577	27.0	18,567	50.6	297	36.4	618	26.5	30,085
CENTRAL	3,589	11.3	203,794	48.5	2,266	13.6	3,648	11.2	251,516
EASTERN	9,950	6.6	480,285	12.4	7,247	7.7	10,128	6.5	684,670
GREAT LAKES	12,694	5.8	464,886	9.4	9,129	6.8	13,039	5.7	642,375
NEW ENGLAND	3,086	12.8	117,035	25.3	1,856	16.2	3,151	12.7	157,504
NORTHWEST MT	5,172	9.5	193,669	16.0	3,367	11.8	5,283	9.4	311,753
SOUTHERN	13,968	5.4	537,949	9.5	9,235	6.6	14,274	5.4	779,437
SOUTHWESTERN	9,818	6.6	301,229	13.8	6,590	8.1	10,147	6.5	450,593
WESTERN-PACIFIC	12,613	5.8	265,349	12.1	6,851	7.8	12,975	5.7	372,399
TOTAL	71,467	2.5	2,582,764	5.8	46,839	3.0	73,263	2.4	3,680,333
									5.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY			NIGHT		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
OTHER 1	9,506	0.0	577,089	8.0	1,191	20.9
OTHER 2	1,294	0.0	97,929	8.9	662	11.8
OTHER 3	165	0.3	17,353	11.6	86	17.3
OTHER 4	125	0.4	21,522	19.2	71	19.4
OTHER 5	54	0.9	10,949	46.4	38	44.8
OTHER 6	305	0.2	145,521	24.9	285	5.3
OTHER 7	199	0.3	163,636	21.3	156	16.2
OTHER 8	105	0.5	30,470	33.7	36	46.8
OTHER 9	404	0.1	146,771	21.2	404	0.1
OTHER 10	184	0.3	23,745	25.2	117	17.2
OTHER 11	598	0.1	80,704	20.2	161	20.1
OTHER 12	310	0.2	124,850	25.0	193	23.9
OTHER 13	2,150	0.0	278,225	43.8	54	97.9
ADAMS A50S	121	0.4	3,014	24.8	0	0.0
AERORSJ2	10	4.9	413	43.7	4	68.1
AEROSPAS355	99	0.5	27,622	24.9	78	18.4
AEROSPAS316	80	0.6	67,033	21.4	11	208.5
AGUSTA205	28	1.8	10,566	23.1	21	23.8
AGUSTAA109	46	1.1	9,532	30.0	46	1.1
AIRPTSA	121	0.4	12,709	18.1	9	93.3
AIRSPC18	16	3.1	1,117	26.4	9	30.1
AIRTRCAT300	360	0.1	170,621	17.1	20	109.9
					531	119.5

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
AIRTRCAT400	60	0.8	18,481	24.3	1	275.0	3	303.6
AMD FALC10	132	0.4	37,817	10.0	127	4.4	9,361	17.1
AMD FALC20	187	0.3	49,376	9.8	187	0.3	11,773	18.9
AMD FALC50	95	0.5	36,969	11.4	95	0.5	12,002	12.3
AMTR TMK	4	10.6	42	1.2	0	0.0	0	0.0
ARCTICS1A	27	1.8	832	19.6	0	0.0	0	0.0
ARCTICS1B1	20	2.4	1,011	19.0	5	56.3	25	53.0
ARONCA15	110	0.5	8,676	15.9	33	24.3	209	32.8
ARONCA58	61	0.8	3,208	28.2	0	0.0	0	0.0
ARONCA65	53	0.9	1,936	17.1	0	0.0	0	0.0
ARONCAC3	15	3.3	359	33.6	0	0.0	0	0.0
AVIANWFALCON	12	4.1	235	0.2	0	0.0	0	0.0
AVIANWSKYHWK	31	1.6	1,595	27.9	0	0.0	0	0.0
AYRES S2	675	0.1	201,140	15.5	149	37.9	35,322	42.5
BAG B206	6	8.0	535	8.9	4	40.2	256	58.3
BAG DH125	68	0.7	25,324	10.4	68	0.7	8,750	17.4
BALWKSFIREFY	1,065	0.0	33,416	17.5	0	0.0	0	0.0
BBAVIA11	439	0.1	15,247	17.6	0	0.0	0	0.0
BBAVIA7	2,227	0.0	144,277	12.6	359	32.3	2,560	44.2
BBAVIA8	180	0.3	23,683	17.9	72	28.3	1,649	104.1
BEECH 100	181	11.9	74,485	30.5	211	0.2	54,218	43.9
BEECH 17	101	0.5	6,128	25.3	35	50.8	357	52.7

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY			NIGHT		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BEECH 18	373	0.1	133,980	35.5	284	22.6
BEECH 1900	69	0.7	74,947	25.4	69	0.7
BEECH 200	788	0.1	246,128	8.5	781	2.1
BEECH 23	2,433	0.0	255,630	19.0	1,903	6.7
BEECH 300	134	0.4	42,845	15.1	128	4.9
BEECH 33	1,878	0.0	339,479	23.0	1,407	8.0
BEECH 35	5,710	0.0	452,939	6.2	4,177	5.6
BEECH 36	2,161	0.0	304,482	12.6	1,944	5.9
BEECH 45	221	0.2	23,012	23.1	169	12.2
BEECH 50	239	0.2	19,880	19.8	176	23.7
BEECH 55	2,007	3.1	269,060	11.5	1,827	6.0
BEECH 56	47	6.8	3,256	18.7	35	14.9
BEECH 58	1,504	0.0	277,393	8.2	1,296	6.3
BEECH 60	426	0.1	39,023	18.6	350	18.9
BEECH 65	78	24.4	21,459	47.6	97	8.9
BEECH 76	283	0.2	49,051	33.9	263	7.4
BEECH 77	205	0.2	34,229	18.3	182	7.7
BEECH 80	105	0.5	23,552	36.7	95	10.5
BEECH 90	1,056	0.0	236,529	10.6	1,054	0.9
BEECH 95	416	0.1	31,829	15.6	342	13.7
BEECH 99	103	0.5	49,568	17.2	65	42.0
BELL 204	104	0.5	23,044	17.0	68	23.0

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SOR MANUFACTURER/MODEL GROUP

MANUFACTURER, MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BELL 206	1,829	0.0	1,130,734	11.8	1,021	13.4	74,320	28.6
BELL 212	102	0.5	31,333	27.1	48	53.8	915	66.9
BELL 222	67	0.7	15,012	23.4	63	7.9	2,932	56.6
BELL 412	52	1.0	45,326	40.4	34	32.1	4,322	51.7
BELL 47	817	0.1	133,047	28.2	416	28.3	6,373	46.3
BLANCA11	30	1.6	930	64.7	0	0.0	0	0.0
BLANCA1413	37	1.3	1,576	30.4	4	114.9	10	121.2
BLANCA1419	180	0.3	8,239	15.4	91	24.9	720	65.7
BLANCA17	840	0.1	69,484	25.5	514	18.1	13,792	38.4
BLANCA7	1,870	0.0	273,249	36.3	661	20.7	4,603	28.2
BLANCA8	384	0.1	24,241	14.1	173	25.6	1,759	55.9
BNORM BN2	30	1.7	7,720	27.5	15	42.8	596	44.5
BOEING75	738	0.1	35,284	20.3	26	95.6	203	112.7
BOLKMS105	133	0.4	50,196	19.8	70	34.7	6,559	44.8
BOLKMS117	37	1.3	11,606	14.9	37	1.3	6,912	21.6
BRAERODH125	93	0.5	34,437	13.7	93	0.5	11,438	16.4
BRWSTRFLEET2	10	4.6	270	21.8	0	0.0	0	0.0
BRWSTRFLEET7	8	6.1	146	48.2	0	0.0	0	0.0
BOKER 131	15	3.3	494	45.1	4	111.2	17	112.3
CAMRONMODELO	188	0.3	11,870	22.6	72	49.1	72	49.1
CASA C212	23	2.1	662	0.1	5	151.9	6	152.8
CESSNA120	701	0.1	45,280	12.6	470	14.2	3,805	32.5

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA140	1,427	0.0	79,827	24.2	427	24.7	3,038	39.2
CESSNA150	16,124	0.0	3,110,333	7.4	11,468	3.8	329,375	10.6
CESSNA170	1,847	0.0	128,064	9.0	843	16.5	8,183	29.3
CESSNA172	23,196	0.2	3,059,423	6.2	17,076	3.0	410,023	10.6
CESSNA175	1,073	0.0	54,933	13.1	703	12.4	5,231	27.8
CESSNA177	2,601	0.0	267,247	9.7	2,157	6.0	42,853	24.7
CESSNA180	2,365	0.0	281,906	16.7	910	19.4	15,300	28.9
CESSNA182	12,639	0.5	1,451,194	8.0	9,265	4.2	143,285	11.9
CESSNA185	1,452	0.0	236,001	21.5	769	16.7	7,920	33.5
CESSNA188	1,348	0.0	268,783	12.6	197	44.7	2,219	53.2
CESSNA190	52	0.9	8,353	40.9	9	89.1	38	93.7
CESSNA195	354	0.1	40,650	27.1	197	21.4	2,839	30.6
CESSNA205	222	0.2	23,270	16.8	143	17.4	1,738	43.3
CESSNA206	2,337	0.0	393,717	12.5	1,400	11.3	23,018	25.2
CESSNA207	364	0.1	198,799	19.2	354	7.4	15,631	23.9
CESSNA208	38	1.3	4,937	58.0	33	19.1	10,748	29.7
CESSNA210	5,453	0.0	651,940	7.4	4,277	5.3	94,573	16.4
CESSNA303	169	0.3	38,491	12.6	151	5.7	8,082	19.9
CESSNA305	227	0.2	41,528	28.7	103	25.2	1,484	41.5
CESSNA310	2,155	0.0	207,550	10.9	1,809	6.8	64,500	24.6
CESSNA320	254	0.2	21,826	40.4	173	17.4	2,668	44.2
CESSNA335	43	1.1	6,805	12.4	41	8.3	1,799	25.3

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA336	54	0.9	3,849	22.8	27	34.0	1,606	55.0
CESSNA337	1,053	0.0	81,019	12.8	748	9.6	14,383	24.5
CESSNA340	876	0.1	145,333	11.5	698	10.5	27,671	25.7
CESSNA401	208	0.2	24,168	20.0	208	0.2	9,739	42.4
CESSNA402	506	0.1	216,492	26.5	408	14.4	38,340	40.8
CESSNA404	125	4.3	21,614	21.3	127	0.4	21,408	33.9
CESSNA411	98	0.5	5,434	43.9	98	0.5	983	80.9
CESSNA414	763	0.1	123,884	13.7	598	12.4	25,832	19.6
CESSNA421	1,158	0.0	162,123	16.7	1,085	6.3	48,383	31.2
CESSNA425	176	0.3	38,198	8.8	176	0.3	9,939	23.9
CESSNA441	219	0.2	62,085	10.8	219	0.2	21,771	27.2
CESSNA500	606	0.1	183,697	14.1	577	5.1	39,379	20.6
CESSNA501	48	1.0	12,287	17.0	48	1.0	3,071	24.1
CESSNA650	131	0.4	32,730	23.5	131	0.4	8,503	25.7
CESSNA750	15	3.3	313	30.6	3	74.4	10	71.9
CESSNAUC77	9	5.0	601	87.1	3	96.1	30	95.5
CESSNAUC94	12	4.1	395	18.5	3	58.7	17	62.3
CHILD S1	56	0.9	3,550	20.8	0	0.0	0	0.0
CHILD S2	159	0.3	13,934	27.5	0	0.0	0	0.0
CNDAIRCL600	113	0.4	29,931	12.6	113	0.4	7,112	18.8
CNTRAR101	33	1.5	3,919	20.0	0	0.0	0	0.0
COMWTH185	25	2.0	1,023	33.7	2	110.4	8	112.8

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CONAERLA4	384	0.1	33,970	20.6	101	46.9	1,622	60.7
CURTISJR	3	15.8	40	23.3	0	0.0	0	0.0
CURTISROBIN	4	11.8	75	0.7	0	0.0	0	0.0
CURTISTRVAIR	40	1.2	2,820	18.1	5	58.0	44	54.4
CVAC 240	20	2.5	2,973	3.7	20	2.5	3,368	54.6
CVAC BT13	46	1.1	1,980	17.1	3	77.9	9	78.9
CVAC STCS80	24	2.0	3,470	29.2	20	23.7	1,468	30.5
DART G	5	9.3	141	81.5	0	0.0	0	0.0
DHAV DHC1	58	0.9	3,073	18.6	18	60.1	103	61.8
DHAV DHC2	176	0.3	70,977	19.0	40	31.9	471	38.4
DHAV DHC3	34	1.4	24,392	17.8	1	349.0	17	433.1
DHAV DHC6	89	15.0	51,218	53.2	73	25.0	24,136	50.5
DHAVXDH82	48	1.0	1,797	12.2	0	0.0	0	0.0
DORNERDO228	22	2.2	0	0.0	22	2.2	0	0.0
DOUG A26	10	4.9	366	63.3	0	0.0	0	0.0
DOUG DC3	231	0.2	21,627	63.0	167	31.4	10,719	152.3
DOUG DC4	23	2.2	1,107	149.5	2	227.6	35	261.9
DOUG DC6	22	2.2	1,234	0.0	22	2.2	2,880	0.0
EAGLE DW	71	0.7	14,783	15.9	36	33.0	701	53.1
EIRVON20	112	0.4	3,455	54.2	0	0.0	0	0.0
EMAIR MA1	21	2.3	9,100	7.7	0	0.0	0	0.0
EMB 110	43	1.1	40,410	17.7	39	9.7	16,976	15.2

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4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GULSTM500	277	0.2	53,829	20.8	247	9.4	10,097	28.2
GULSTM520	13	3.7	1,197	30.6	11	33.6	239	32.6
GULSTM560	93	0.5	3,424	20.3	42	41.8	309	45.5
GULSTM680	153	0.3	14,851	17.0	120	12.6	9,294	44.3
GULSTM680TP	84	0.6	5,264	47.1	78	14.6	1,080	84.2
GULSTM690TC	23	2.1	5,802	8.2	23	2.1	1,796	22.8
GULSTM690TP	364	0.1	74,476	12.5	364	0.1	16,357	24.3
GULSTMAA1	433	0.1	30,157	22.6	299	16.7	4,417	45.8
GULSTMAA5	594	0.8	44,112	9.2	413	9.5	6,460	19.7
GULSTMG1159	185	0.3	65,549	15.6	185	0.3	18,262	20.4
GULSTMG159	63	0.8	18,391	20.3	63	0.8	5,890	24.7
GULSTMGA4	60	0.8	4,537	40.2	5	211.8	63	227.2
GULSTMG73	17	2.9	11,314	40.5	10	36.1	137	42.6
GULSTMGA7	50	1.0	7,993	10.9	48	4.4	1,074	18.3
H23/HTE	13	3.6	3,105	22.3	4	79.9	39	77.9
H34/55	1	26.0	283	0.2	0	0.0	0	0.0
HELIO H250	11	4.3	809	37.6	6	57.1	20	56.2
HELIO H295	72	0.7	17,580	33.2	47	30.7	1,702	46.2
HELIO H391	11	4.2	489	27.1	6	49.2	11	48.0
HILLER-H1100	18	2.8	2,732	39.9	10	42.1	239	54.6
HILLERUH12	170	0.3	34,630	24.2	41	41.9	1,406	63.8
HSPAVNHA200	23	2.1	482	16.1	12	68.9	12	68.8

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY			NIGHT		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
HUGHES269	449	0.1	143,119	17.7	351	9.6
HUGHES369	432	0.1	150,918	25.6	251	22.2
HWKSLYDH125	181	0.3	42,385	14.1	181	0.3
HYNES B2	64	0.8	1,415	16.5	18	42.9
INTRCP200	24	2.0	1,214	20.9	15	39.5
ISRAEL1121	86	0.6	6,387	22.9	70	13.9
ISRAEL1123	22	2.2	4,226	16.0	22	2.2
ISRAEL1124	204	0.2	64,302	11.3	204	0.2
JBMSTRDGA15	17	2.9	530	54.0	5	92.9
LAIFN10	3	14.6	58	0.8	0	0.0
LEAR 23	47	1.0	7,293	24.4	42	18.8
LEAR 24	164	0.3	35,799	29.7	164	0.3
LEAR 25	225	4.6	83,055	15.4	230	0.2
LEAR 35	417	0.1	143,674	9.2	417	0.1
LEAR 55	103	0.5	34,224	9.4	103	0.5
LET L13	149	0.3	9,702	32.5	0	0.0
LKHEED12A	7	6.5	214	43.7	0	0.0
LKHEED1329	81	0.6	21,033	16.5	81	0.6
LKHEED18	33	1.5	798	35.0	0	0.0
LKHEEDP2V	11	4.3	132	0.4	0	0.0
LKHEEDPV1	2	20.5	28	1.7	2	20.5
LKHEEDT33	7	7.1	243	21.3	1	97.7
					1	97.9

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY			NIGHT		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR
LUSCOM8	1,119	0.0	52,483	19.7	228	36.7
MAULE M4	160	0.3	10,894	13.3	95	26.0
MAULE M5	410	0.1	33,340	12.4	320	14.6
MAULE M6	64	0.8	8,662	12.2	42	16.3
MCLISHFUNKB	78	0.6	4,070	19.5	6	83.3
MEYERSOTW	23	2.1	792	19.2	2	102.5
MNCOP90	18	2.7	404	45.0	1	136.9
MNMITEM18	56	0.9	1,480	27.8	9	64.9
MOONEYM20	5,661	0.0	588,952	8.2	4,028	6.5
MRCHTIS205	38	1.3	1,621	21.2	16	48.8
MTSBSIM02	253	0.2	37,996	23.6	253	0.2
MTSBSIM0300	69	0.7	17,705	15.3	66	6.1
MULTECD16	15	3.1	630	24.3	3	72.3
NAMER B25	40	1.2	2,230	15.2	2	200.5
NAMER F51	68	0.7	4,436	25.4	20	44.3
NAMER NA260	75	0.7	4,231	28.8	8	71.7
NAMER T6	452	0.1	30,326	16.0	91	41.7
NATBAL752	32	1.6	1,303	18.7	0	0.0
NAVAL N3N	54	0.9	2,307	17.5	14	52.8
NAVIONNAVION	403	0.1	28,260	12.5	190	20.9
NORD 3202	6	7.7	240	0.2	0	0.0
NORD SV4	28	1.8	1,261	29.1	0	0.0

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
NORWST65	31	1.6	1,800	25.3	0	0.0	0	0.0
PARTENP68	38	1.3	8,026	44.5	23	30.4	1,198	44.6
PICARDAX6	27	1.8	494	48.5	0	0.0	0	0.0
PILATSB4	20	2.4	1,314	26.0	0	0.0	0	0.0
PIPER 600	364	0.1	41,196	16.0	327	8.7	8,183	36.5
PIPER E2	9	5.6	177	32.5	0	0.0	0	0.0
PIPER J2	23	2.1	521	20.1	0	0.0	0	0.0
PIPER J3	2,280	0.0	123,521	12.1	42	85.5	154	98.8
PIPER J4	97	0.5	2,366	44.1	0	0.0	0	0.0
PIPER J5	139	0.4	10,451	46.3	13	55.0	44	60.0
PIPER PA12	849	0.1	65,660	12.3	160	34.1	1,334	51.9
PIPER PA14	75	0.7	6,220	20.1	43	29.7	175	35.5
PIPER PA15	121	0.4	5,626	31.7	3	199.9	49	214.2
PIPER PA16	224	0.2	6,570	36.6	43	71.1	111	86.1
PIPER PA17	64	0.8	2,893	17.3	1	162.7	3	171.8
PIPER PA18	2,144	0.0	275,345	20.9	547	27.9	5,505	53.2
PIPER PA20	257	0.2	14,953	14.4	117	21.9	868	48.4
PIPER PA22	2,927	0.0	171,281	8.9	1,525	10.9	15,639	23.1
PIPER PA23	2,574	0.0	267,919	13.8	1,845	8.5	46,296	22.4
PIPER PA24	2,761	0.0	201,876	8.7	1,902	9.8	19,125	22.1
PIPER PA25	930	0.1	200,352	13.7	205	42.3	1,333	115.2
PIPER PA28	20,343	0.0	2,359,737	6.0	15,733	2.7	332,031	8.5

MANUFACTURER/ MODEL GROUP	DAY			NIGHT				
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR		
PIPER PA30	1,092	0.0	121,952	14.4	813	11.0	29,048	30.6
PIPER PA31	1,705	0.0	395,583	14.7	1,686	2.0	107,587	16.4
PIPER PA31T	440	0.1	94,221	11.9	440	0.1	21,893	20.4
PIPER PA32	3,861	0.0	469,217	13.8	3,318	4.9	111,712	20.6
PIPER PA34	1,787	0.0	333,457	17.1	1,736	4.4	57,970	32.2
PIPER PA36	290	0.2	47,711	16.1	127	42.0	911	50.7
PIPER PA38	1,164	0.0	199,553	18.3	880	9.8	18,821	24.7
PIPER PA42	102	0.5	25,474	15.4	102	0.5	10,314	19.3
PIPER PA44	294	0.2	103,724	24.0	280	6.2	12,388	38.7
PIPER PA46	296	0.2	65,466	15.2	285	4.3	15,216	19.0
PROPTJ200	54	0.9	4,184	35.3	45	27.4	100	138.3
RAVEN RX6	70	0.7	1,033	37.4	0	0.0	0	0.0
RAVEN S50	15	3.2	573	23.9	0	0.0	0	0.0
RAVEN S55	467	0.1	16,015	31.0	82	90.8	247	90.8
RAVEN S57	45	1.1	2,724	12.1	0	0.0	0	0.0
RAVEN S60	207	0.2	5,825	20.9	0	0.0	0	0.0
RAVEN S66	46	1.1	5,725	18.5	0	0.0	0	0.0
RKWE1500	26	1.9	3,686	40.5	24	10.7	738	36.4
RKWE1700	21	2.3	3,334	29.8	21	2.3	2,000	38.2
RKWE1NA265	274	0.2	79,548	13.6	274	0.2	26,697	21.3
ROBS1NR22	194	0.3	66,099	12.4	159	6.3	6,764	25.1
ROLSCHLS	119	0.4	8,178	19.4	0	0.0	0	0.0

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
RYAN ST3	82	0.6	2,941	12.9	0	0.0	0	0.0
RYAN STA	9	5.5	557	36.8	0	0.0	0	0.0
SCHEMPPDISCUS	42	1.2	4,991	11.4	0	0.0	0	0.0
SCHLERASK21	33	1.5	7,588	17.3	0	0.0	0	0.0
SCHLERASW15	30	1.7	829	28.4	0	0.0	0	0.0
SCHLERASW19	57	0.9	4,089	16.9	0	0.0	0	0.0
SCHLERASW20	93	0.5	5,267	15.8	0	0.0	0	0.0
SCHLERK8	18	2.6	527	39.2	0	0.0	0	0.0
SCHLERKA6	45	1.1	1,715	14.9	0	0.0	0	0.0
SCWZERGL64	156	0.3	56,149	12.1	16	56.9	1,819	60.1
SCWZERSG1	598	0.1	68,115	74.5	0	0.0	0	0.0
SCWZERSG2	313	0.2	67,217	15.6	0	0.0	0	0.0
SEMCO MODELT	18	2.7	180	0.3	0	0.0	0	0.0
SKRSKYS55	14	3.6	919	17.6	8	47.9	11	46.8
SKRSKYS58	17	2.9	2,107	25.4	9	50.2	194	47.7
SKRSKYS58T	19	2.5	6,866	31.9	19	2.5	361	32.0
SKRSKYS61	11	4.3	9,565	30.7	3	57.1	1,252	51.0
SKRSKYS76	138	0.4	67,676	18.0	91	19.8	5,332	28.4
SLINDS100	227	0.2	13,390	13.5	175	13.2	1,632	34.8
SMITH 600	336	0.1	42,297	11.6	320	5.0	14,115	20.7
SNIAS 350	193	0.3	87,187	16.7	113	26.2	17,176	53.4
SNIAS SA341	13	3.6	1,250	27.2	8	51.0	654	75.6

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SOCATAMS894	31	1.6	1,882	14.6	19	19.0	312	24.2
SOCATARALLYE	16	3.0	1,164	17.6	7	35.2	40	37.0
SOCATATB10	40	1.2	3,580	47.6	31	24.8	386	120.7
SOCATATB20	100	0.5	13,219	14.7	94	5.6	1,844	32.2
SPRTHCIRRUS	87	0.6	6,052	12.4	0	0.0	0	0.0
SPRTHNIMBUS	45	1.1	3,607	21.5	0	0.0	0	0.0
SPRTHVENTUS	44	1.1	5,357	18.3	0	0.0	0	0.0
STNSON10	29	1.7	563	51.0	1	188.0	3	199.3
STNSONJR	12	4.1	170	23.5	0	0.0	0	0.0
STNSONLS	39	1.3	2,188	29.2	5	78.7	22	88.7
STNSONSR9	7	6.3	165	41.2	2	66.6	21	62.0
STNSONV77	42	1.2	1,265	15.6	5	84.3	39	128.7
STOLAMRC3	99	0.5	4,003	27.8	18	60.4	237	66.3
SUPAC LA	17	2.8	838	34.4	0	0.0	0	0.0
SWRNGNSA226	139	0.4	125,365	3.5	139	0.4	35,484	12.0
SWRNGNSA227	77	0.6	46,107	27.8	77	0.6	38,523	22.1
SWRNGNSA26	50	1.0	7,670	22.0	50	1.0	1,959	23.1
TCRAFTD	88	0.6	4,790	27.0	0	0.0	0	0.0
TCRAFTA	7	6.3	378	46.2	0	0.0	0	0.0
TCRAFTBC	823	0.1	49,455	13.0	108	45.8	761	60.0
TCRAFTBP	20	2.4	817	12.1	3	91.5	3	91.4
TCRAFTBL	95	0.5	4,475	13.5	3	132.7	13	137.0

4.7 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY			NIGHT		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
TEMCO 11A	10	4.6	589	16.2	4	44.4
TH55	16	3.1	2,224	19.4	9	35.5
THUNDRAX7	72	0.7	3,240	17.1	0	0.0
TMP SONNAVTON	406	0.1	28,331	11.5	176	15.2
TRYTEK65	178	0.3	10,092	22.9	20	66.4
TRYTEKK	9	5.2	127	19.9	0	0.0
UNIVACGC1	355	0.1	18,787	12.9	156	19.4
UNIVARI08	937	0.1	53,805	14.5	585	14.6
UNIVAR415	1,367	0.0	64,610	17.7	271	37.9
VALENT17	23	2.1	983	23.4	3	95.3
VARGA 2150	119	0.4	8,314	20.9	33	60.6
WACO ASO	9	5.3	342	25.2	0	0.0
WACO GXE	7	6.4	368	38.6	0	0.0
WACO R	9	5.1	226	20.1	1	106.8
WACO UPF7	80	0.6	7,743	30.8	7	54.3
WACO YK	14	3.5	370	25.0	0	0.0
WSK M18	33	1.5	9,528	85.9	0	0.0
WTHRLY201	45	1.1	11,316	22.3	0	0.0
TOTALS	210,026	0.0	29,089,850	1.7	130,695	1.0
					4,420,770	3.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
OTHER 1	270	46.4	1,385	51.5	9,506	0.0	585,425	8.0
OTHER 2	374	19.0	4,823	39.0	1,294	0.0	100,545	9.0
OTHER 3	38	33.0	895	92.4	165	0.3	18,429	11.4
OTHER 4	76	17.7	7,708	38.8	115	6.9	18,521	21.3
OTHER 5	36	49.2	3,595	48.5	54	0.9	10,954	46.4
OTHER 6	255	8.7	40,782	26.6	285	5.3	197,110	24.1
OTHER 7	156	16.2	56,663	28.7	199	0.3	169,916	24.4
OTHER 8	27	56.8	2,692	71.5	105	0.5	31,363	33.6
OTHER 9	404	0.1	106,546	38.9	378	7.8	88,409	31.1
OTHER 10	146	11.6	10,318	43.9	168	7.2	19,383	31.0
OTHER 11	0	0.0	0	0.0	598	0.1	88,288	22.2
OTHER 12	79	52.4	10,033	60.8	310	0.2	186,924	22.3
OTHER 13	54	97.9	1,444	97.8	2,150	0.0	298,985	47.5
ADAMS A50S	0	0.0	0	0.0	121	0.4	3,014	24.8
AERORSJ2	0	0.0	0	0.0	10	4.9	421	42.7
AEROSPAS355	0	0.0	0	0.0	99	0.5	33,294	20.4
AEROSPSA316	0	0.0	0	0.0	80	0.6	67,335	20.4
AGUSTA205	0	0.0	0	0.0	28	1.8	11,477	21.5
AGUSTAA109	21	47.1	312	61.1	46	1.1	10,490	26.2
AIRPTSA	0	0.0	0	0.0	121	0.4	12,720	18.1
AIRSPC18	0	0.0	0	0.0	16	3.1	1,251	29.2
AIRTRCAT300	0	0.0	0	0.0	360	0.1	171,177	17.1

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
AIRTRCAT400	0	0.0	0	0.0	60	0.8	18,484	24.3
AMD FALC10	127	4.4	15,616	21.6	124	5.3	31,561	13.6
AMD FALC20	187	0.3	15,107	31.6	175	7.6	46,043	13.6
AMD FALC50	95	0.5	17,856	28.1	71	18.3	31,305	21.0
AMTR TMK	0	0.0	0	0.0	4	10.6	42	1.2
ARCTICS1A	0	0.0	0	0.0	27	1.8	832	19.6
ARCTICS1B1	0	0.0	0	0.0	20	2.4	1,037	19.3
ARONCA15	2	111.7	5	113.6	110	0.5	8,879	16.0
ARONCA58	0	0.0	0	0.0	61	0.8	3,208	28.2
ARONCA65	0	0.0	0	0.0	53	0.9	1,936	17.1
ARONCAC3	0	0.0	0	0.0	15	3.3	359	33.6
AVIANWFALCON	0	0.0	0	0.0	12	4.1	235	0.2
AVIANWSKYHWK	0	0.0	0	0.0	31	1.6	1,595	27.9
AYRES S2	15	35.4	524	38.4	675	0.1	235,993	13.9
BAG B206	1	99.8	43	99.8	6	8.0	797	17.0
BAG DH125	66	4.7	11,110	30.7	68	0.7	22,963	11.6
BALWKSFIREFY	0	0.0	0	0.0	1,065	0.0	33,416	17.5
BBAVIA11	0	0.0	0	0.0	439	0.1	15,247	17.6
BBAVIA7	120	59.3	2,186	76.5	2,227	0.0	144,708	13.1
BBAVIA8	0	0.0	0	0.0	180	0.3	25,332	20.6
BEECH 100	211	0.2	48,101	34.8	209	2.9	80,603	24.7
BEECH 17	11	106.8	138	115.4	101	0.5	6,348	24.8

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BEECH 18	280	23.2	46,414	35.0	365	0.8	177,031	28.0
BEECH 1900	65	15.2	34,526	33.7	69	0.7	94,207	19.0
BEECH 200	788	0.1	98,633	18.7	749	5.0	213,977	11.3
BEECH 23	696	20.0	17,961	28.5	2,433	0.0	289,235	17.8
BEECH 300	134	0.4	11,471	15.7	126	5.6	41,644	16.0
BEECH 33	1,317	9.0	112,809	66.5	1,878	0.0	307,857	19.3
BEECH 35	2,356	11.0	41,965	17.0	5,710	0.0	462,550	6.2
BEECH 36	1,506	11.6	59,448	22.5	2,161	0.0	310,285	17.3
BEECH 45	84	27.9	1,089	48.5	221	0.2	23,803	23.2
BEECH 50	204	16.5	4,631	35.6	239	0.2	17,408	19.6
BEECH 55	1,717	7.4	56,728	18.2	2,081	0.0	269,957	12.0
BEECH 56	30	18.8	3,565	54.2	50	1.0	4,202	19.7
BEECH 58	1,416	3.9	98,144	17.3	1,484	1.8	254,777	11.6
BEECH 60	400	10.4	11,840	58.0	417	5.9	35,049	19.3
BEECH 65	63	34.9	2,377	58.9	101	0.5	24,148	40.7
BEECH 76	208	15.9	7,962	92.7	283	0.2	51,365	36.6
BEECH 77	21	62.5	1,497	73.8	205	0.2	37,174	17.3
BEECH 80	70	22.8	4,075	43.3	105	0.5	23,463	34.7
BEECH 90	1,031	3.3	80,274	17.1	978	6.0	218,709	11.9
BEECH 95	330	15.0	11,004	41.7	416	0.1	33,242	18.9
BEECH 99	103	0.5	9,293	31.6	103	0.5	65,962	16.2
BELL 204	20	64.2	62	63.6	104	0.5	23,676	16.7

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BELL 206	157	49.2	1,014	52.8	1,829	0.0	1,203,602	11.3
BELL 212	0	0.0	0	0.0	102	0.5	32,248	26.4
BELL 222	48	19.3	1,837	93.7	67	0.7	16,107	22.7
BELL 412	46	16.3	4,267	38.8	52	1.0	45,380	34.9
BELL 47	58	104.0	41	104.0	817	0.1	139,379	28.1
BLANCA11	0	0.0	0	0.0	30	1.6	930	64.7
BLANCA1413	0	0.0	0	0.0	37	1.3	1,588	30.4
BLANCA1419	17	76.5	162	83.0	180	0.3	8,796	15.9
BLANCA17	439	21.7	12,738	58.3	840	0.1	70,616	22.4
BLANCA7	0	0.0	0	0.0	1,870	0.0	277,688	35.7
BLANCA8	0	0.0	0	0.0	384	0.1	26,000	15.3
BNORM BN2	4	107.2	189	110.2	30	1.7	8,127	27.1
BOEING75	0	0.0	0	0.0	738	0.1	35,336	20.4
BOLKMS105	0	0.0	0	0.0	133	0.4	56,506	17.9
BOLKMS117	0	0.0	0	0.0	37	1.3	18,518	10.6
BRAERODH125	93	0.5	23,323	25.0	57	22.8	22,552	27.8
BRWSTRFLEET2	0	0.0	0	0.0	10	4.6	270	21.8
BRWSTRFLEET7	0	0.0	0	0.0	8	6.1	146	48.2
BUKER 131	0	0.0	0	0.0	15	3.3	511	47.4
CAMRONMODELO	0	0.0	0	0.0	188	0.3	11,941	22.7
CASA C212	5	151.9	3	148.8	23	2.1	676	0.1
CESSNA120	0	0.0	0	0.0	701	0.1	49,085	12.7

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA140	9	201.1	54	206.8	1,427	0.0	82,959	23.7
CESSNA150	1,462	19.1	59,893	33.8	16,122	0.1	3,381,152	7.3
CESSNA170	140	52.7	1,679	61.7	1,847	0.0	134,748	9.0
CESSNA172	6,463	8.0	241,646	15.8	23,230	0.0	3,227,604	6.2
CESSNA175	106	51.5	478	63.0	1,073	0.0	59,501	12.8
CESSNA177	1,491	11.5	41,962	38.8	2,601	0.0	267,623	10.0
CESSNA180	269	42.9	8,098	50.3	2,365	0.0	289,108	17.0
CESSNA182	5,563	7.8	138,193	14.8	12,620	0.5	1,455,486	8.1
CESSNA185	407	28.4	4,704	44.1	1,452	0.0	239,216	21.3
CESSNA188	0	0.0	0	0.0	1,348	0.0	271,002	12.5
CESSNA190	3	157.8	22	167.4	52	0.9	8,372	40.7
CESSNA195	176	24.1	1,633	25.1	354	0.1	41,855	26.4
CESSNA205	95	27.0	1,945	50.7	210	5.7	23,051	19.4
CESSNA206	1,166	13.8	38,951	28.3	2,337	0.0	376,347	13.0
CESSNA207	42	116.6	1,240	141.3	364	0.1	213,190	18.3
CESSNA208	38	1.3	5,596	16.1	38	1.3	9,967	5.9
CESSNA210	3,500	7.5	109,341	16.0	5,453	0.0	637,366	7.7
CESSNA303	155	5.0	12,225	26.6	166	2.3	34,348	13.3
CESSNA305	18	78.5	798	77.9	227	0.2	42,196	28.3
CESSNA310	1,597	9.2	47,416	24.6	2,155	0.0	224,634	11.0
CESSNA320	87	35.1	3,263	50.5	254	0.2	21,207	40.4
CESSNA335	43	1.1	1,457	8.1	43	1.1	7,147	15.3

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA336	23	39.4	682	46.7	54	0.9	4,773	25.5
CESSNA337	595	13.2	15,122	20.5	1,050	0.8	80,258	13.5
CESSNA340	876	0.1	56,281	18.0	876	0.1	116,724	13.2
CESSNA401	172	15.4	14,122	29.0	177	14.0	20,078	31.8
CESSNA402	431	12.3	56,498	34.2	477	7.3	198,334	26.8
CESSNA404	127	0.4	18,698	36.5	127	0.4	27,324	20.2
CESSNA411	80	24.7	514	107.4	98	0.5	5,903	45.8
CESSNA414	627	11.0	29,508	22.5	763	0.1	120,208	13.2
CESSNA421	1,011	9.2	64,458	32.4	1,139	3.1	146,501	17.5
CESSNA425	176	0.3	10,980	17.1	176	0.3	37,158	10.4
CESSNA441	219	0.2	20,891	23.3	210	5.6	62,965	13.9
CESSNA500	593	3.5	62,572	39.0	518	9.3	163,699	17.3
CESSNA501	48	1.0	2,407	33.3	44	12.0	12,951	20.2
CESSNA650	131	0.4	11,698	31.7	102	16.9	29,534	28.8
CESSNA750	0	0.0	0	0.0	15	3.3	323	28.5
CESSNAUC77	0	0.0	0	0.0	9	5.0	631	87.5
CESSNAUC94	0	0.0	0	0.0	12	4.1	413	19.1
CHILD S1	0	0.0	0	0.0	56	0.9	3,550	20.8
CHILD S2	0	0.0	0	0.0	159	0.3	13,934	27.5
CNDAIRCL600	113	0.4	6,781	27.4	106	9.2	30,262	15.9
CNTRAR101	0	0.0	0	0.0	33	1.5	3,919	20.0
COMWTH185	0	0.0	0	0.0	25	2.0	1,031	33.5

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CONAERLA4	17	127.4	651	135.9	384	0.1	34,941	20.5
CURTISJR	0	0.0	0	0.0	3	15.8	40	23.3
CURTISROBIN	0	0.0	0	0.0	4	11.8	75	0.7
CURTISTRVAIR	0	0.0	0	0.0	40	1.2	2,863	18.2
CVAC 240	20	2.5	796	25.7	20	2.5	5,545	31.5
CVAC BT13	0	0.0	0	0.0	46	1.1	1,988	17.1
CVAC STC580	20	23.7	2,031	69.8	22	15.1	2,908	29.9
DART G	0	0.0	0	0.0	5	9.3	141	81.5
DHAV DHC1	0	0.0	0	0.0	58	0.9	3,176	18.6
DHAV DHC2	2	136.4	13	144.2	176	0.3	71,451	18.8
DHAV DHC3	0	0.0	0	0.0	34	1.4	24,408	17.5
DHAV DHC6	73	25.0	18,518	64.0	89	15.0	56,836	49.4
DHAVXXDH82	0	0.0	0	0.0	48	1.0	1,797	12.2
DORNERD0228	22	2.2	0	0.0	22	2.2	0	0.0
DOUG A26	0	0.0	0	0.0	10	4.9	366	63.3
DOUG DC3	52	93.0	7,383	103.0	231	0.2	25,371	59.2
DOUG DC4	0	0.0	0	0.0	23	2.2	1,142	152.9
DOUG DC6	22	2.2	1,234	0.0	22	2.2	2,880	0.0
EAGLE DW	0	0.0	0	0.0	71	0.7	15,484	15.4
EIRVON20	0	0.0	0	0.0	112	0.4	3,455	54.2
EMAIR MA1	0	0.0	0	0.0	21	2.3	9,100	7.7
EMB 110	27	22.4	18,556	37.4	35	13.8	38,830	26.9

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ENSTRMF28	4	133.4	411	149.4	317	0.2	45,222	25.4
FLEET 16B	0	0.0	0	0.0	12	3.9	489	15.8
FRCHLD24	0	0.0	0	0.0	81	0.6	2,452	25.5
FRCHLDM62	5	147.6	6	148.1	118	0.4	4,002	32.4
GALAXYGX7	0	0.0	0	0.0	32	1.5	757	19.1
GENBALAX6	0	0.0	0	0.0	36	1.4	676	46.7
GLASER300	0	0.0	0	0.0	22	2.3	2,167	27.6
GLASER400	0	0.0	0	0.0	33	1.5	4,017	18.9
GLASFL201	0	0.0	0	0.0	34	1.5	1,608	34.5
GLASFLH301	0	0.0	0	0.0	101	0.5	3,988	19.5
GROB 103CAT	0	0.0	0	0.0	53	0.9	7,701	20.3
GROB 109	2	90.6	7	89.2	60	0.8	5,263	20.8
GROB ASTIR	0	0.0	0	0.0	55	0.9	3,122	36.9
GRTLKS2T1	0	0.0	0	0.0	129	0.4	5,717	21.1
GRUMANSAL6	15	3.2	78	0.6	15	3.2	3,822	0.0
GRUMAVAA1	54	66.1	517	69.2	500	0.1	40,871	16.0
GRUMAVAA5	407	21.6	9,512	35.6	971	0.1	119,836	13.9
GRUMAVG1159	34	1.4	5,653	34.0	23	21.7	6,417	26.7
GRUMAVG164	0	0.0	0	0.0	1,125	0.0	409,494	11.8
GRUMAVG21	23	29.8	99	29.6	26	1.9	4,676	26.0
GRUMAVTBM	0	0.0	0	0.0	13	3.7	758	42.2
GULSTM112	276	22.9	10,324	35.2	544	0.1	43,987	20.0

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GULSTM500	233	11.7	10,723	24.2	277	0.2	53,223	21.6
GULSTM520	11	33.6	237	35.8	13	3.7	1,198	32.2
GULSTM560	20	73.0	284	77.9	93	0.5	3,604	18.6
GULSTM680	103	16.7	4,612	21.4	153	0.3	19,533	22.7
GULSTM680TP	78	14.6	1,711	96.1	84	0.6	4,633	49.0
GULSTM690TC	23	2.1	3,176	10.4	21	12.2	4,422	24.6
GULSTM690TP	352	4.8	24,981	31.7	348	5.7	65,852	17.0
GULSTMAA1	86	50.1	1,186	61.7	433	0.1	33,388	22.0
GULSTMAA5	137	26.2	2,792	31.9	595	0.1	47,729	8.9
GULSTMG1159	185	0.3	31,357	33.7	138	19.4	51,243	30.4
GULSTMG159	63	0.8	7,249	37.5	63	0.8	17,032	22.5
GULSTMG44	12	137.0	175	147.7	60	0.8	4,425	37.2
GULSTMG73	12	29.0	478	56.3	15	16.8	10,973	43.6
GULSTMGA7	42	8.9	1,481	17.9	50	1.0	7,585	11.8
H23/HTE	0	0.0	0	0.0	13	3.6	3,144	21.8
H34/55	0	0.0	0	0.0	1	26.0	283	0.2
HELIO H250	6	57.1	39	53.8	11	4.3	790	41.3
HELIO H295	9	109.5	135	123.1	72	0.7	19,147	34.4
HELIO H391	3	80.8	46	77.7	11	4.2	454	24.3
HILLERFH1100	0	0.0	0	0.0	18	2.8	2,971	40.9
HILLERUH12	0	0.0	0	0.0	170	0.3	36,035	23.4
HSPAVNHA200	0	0.0	0	0.0	23	2.1	495	17.4

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
HUGHES269	13	103.3	1,310	110.4	449	0.1	199,183	16.0
HUGHES369	0	0.0	0	0.0	432	0.1	203,428	25.7
HWKSLYDH125	181	0.3	9,202	28.8	179	3.7	43,883	14.4
HYNES B2	0	0.0	0	0.0	64	0.8	1,566	16.4
INTRCP200	18	29.9	276	108.3	24	2.0	1,112	22.0
ISRAEL1121	67	15.0	5,777	45.8	75	11.3	6,318	25.0
ISRAEL1123	22	2.2	936	27.9	22	2.2	4,199	16.5
ISRAEL1124	204	0.2	27,285	29.3	189	6.9	55,491	16.1
JBMSTRDGA15	9	59.2	27	57.7	17	2.9	505	56.9
LAIKFN10	0	0.0	0	0.0	3	14.6	58	0.8
LEAR 23	47	1.0	1,965	20.3	45	13.1	6,698	32.2
LEAR 24	159	5.4	35,348	48.3	133	14.7	29,558	45.0
LEAR 25	230	0.2	72,026	35.8	167	18.6	67,315	23.6
LEAR 35	411	3.1	68,706	25.3	374	8.8	120,246	17.4
LEAR 55	103	0.5	22,018	29.6	74	18.0	18,117	25.0
LET L13	0	0.0	0	0.0	149	0.3	9,702	32.5
LKHEED12A	0	0.0	0	0.0	7	6.5	214	43.7
LKHEED1329	81	0.6	6,857	33.5	73	10.1	19,404	20.8
LKHEED18	0	0.0	0	0.0	33	1.5	798	35.0
LKHEEDP2V	0	0.0	0	0.0	11	4.3	132	0.4
LKHEEDPV1	0	0.0	0	0.0	2	20.5	56	0.9
LKHEEDT33	1	97.7	5	97.2	7	7.1	239	21.7

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
LUSCOM8	102	58.4	3,148	84.2	1,119	0.0	53,147	19.6
MAULE M4	5	162.2	199	173.1	160	0.3	11,391	13.9
MAULE M5	59	66.6	510	72.7	410	0.1	34,901	13.2
MAULE M6	26	27.0	244	32.9	64	0.8	8,863	12.5
MCCLISHFUNKB	0	0.0	0	0.0	78	0.6	4,098	19.8
MEYERSOTW	0	0.0	0	0.0	23	2.1	800	19.6
MNCOP90	0	0.0	0	0.0	18	2.7	415	46.7
MMMITM18	0	0.0	0	0.0	56	0.9	1,485	27.7
MOONEYM20	3,334	8.5	105,443	19.5	5,661	0.0	581,004	9.5
MRCHTIS205	4	116.1	47	118.6	38	1.3	1,616	19.7
MTSBSIMU2	243	6.9	16,722	49.5	250	3.7	38,781	25.7
MTSBSIMU300	66	6.1	7,699	34.4	63	8.5	13,609	20.2
MULTECD16	3	72.3	12	84.8	15	3.1	626	24.2
NAMER B25	4	148.6	38	156.6	40	1.2	2,210	15.2
NAMER F51	17	49.0	91	89.1	68	0.7	4,495	25.6
NAMER NA260	2	125.2	37	130.0	75	0.7	4,259	28.6
NAMER T6	33	74.1	228	76.4	448	2.2	30,511	16.1
NATBAL752	0	0.0	0	0.0	32	1.6	1,303	18.7
NAVAL N3N	0	0.0	0	0.0	54	0.9	2,385	17.1
NAVIONNAVION	77	40.5	2,625	52.3	403	0.1	29,303	12.6
NORD 3202	0	0.0	0	0.0	6	7.7	240	0.2
NORD SV4	0	0.0	0	0.0	28	1.8	1,261	29.1

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
NORWST65	0	0.0	0	0.0	31	1.6	1,800	25.3
PARTENP68	23	30.4	1,240	35.8	38	1.3	7,983	44.1
PICARDAX6	0	0.0	0	0.0	27	1.8	494	48.5
PILATSB4	0	0.0	0	0.0	20	2.4	1,314	26.0
PIPER 600	261	16.1	14,422	23.8	337	7.4	34,958	22.0
PIPER E2	0	0.0	0	0.0	9	5.6	177	32.5
PIPER J2	0	0.0	0	0.0	23	2.1	521	20.1
PIPER J3	0	0.0	0	0.0	2,280	0.0	123,682	12.1
PIPER J4	0	0.0	0	0.0	97	0.5	2,366	44.1
PIPER J5	0	0.0	0	0.0	139	0.4	10,496	46.1
PIPER PA12	0	0.0	0	0.0	849	0.1	67,042	12.8
PIPER PA14	0	0.0	0	0.0	75	0.7	6,398	19.0
PIPER PA15	0	0.0	0	0.0	121	0.4	5,674	32.1
PIPER PA16	3	283.9	3	283.9	224	0.2	6,678	36.6
PIPER PA17	0	0.0	0	0.0	64	0.8	2,896	17.3
PIPER PA18	86	79.7	700	91.0	2,144	0.0	280,290	20.6
PIPER PA20	2	207.9	9	231.3	257	0.2	15,812	14.7
PIPER PA22	32	112.0	293	104.3	2,924	0.2	186,457	9.0
PIPER PA23	1,448	12.0	56,202	24.8	2,551	1.3	256,143	13.9
PIPER PA24	1,197	16.6	26,989	27.2	2,761	0.0	193,391	8.7
PIPER PA25	0	0.0	0	0.0	930	0.1	201,686	13.7
PIPER PA28	8,390	5.8	260,258	13.1	20,285	0.2	2,430,556	5.8

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
PIPER PA30	799	11.4	28,986	28.9	1,092	0.0	122,014	14.8
PIPER PA31	1,682	2.3	139,050	19.3	1,700	1.2	364,123	15.9
PIPER PA31T	440	0.1	37,065	29.9	391	8.3	79,268	14.5
PIPER PA32	2,909	7.0	115,402	21.6	3,861	0.0	464,968	13.3
PIPER PA34	1,518	10.6	87,002	30.6	1,760	3.1	304,426	19.0
PIPER PA36	0	0.0	0	0.0	290	0.2	48,652	15.4
PIPER PA38	104	54.9	1,609	155.4	1,164	0.0	216,553	18.2
PIPER PA42	102	0.5	8,399	18.4	95	6.8	27,454	15.2
PIPER PA44	245	12.3	11,191	36.4	294	0.2	104,921	23.7
PIPER PA46	296	0.2	19,761	15.3	296	0.2	60,921	16.3
PROPTJ200	43	31.3	1,044	64.2	54	0.9	3,239	39.4
RAVEN RX6	0	0.0	0	0.0	70	0.7	1,033	37.4
RAVEN S50	0	0.0	0	0.0	15	3.2	573	23.9
RAVEN S55	0	0.0	0	0.0	467	0.1	16,263	31.1
RAVEN S57	0	0.0	0	0.0	45	1.1	2,724	12.1
RAVEN S60	0	0.0	0	0.0	207	0.2	5,825	20.9
RAVEN S66	0	0.0	0	0.0	46	1.1	5,725	18.5
RKWEILL500	24	10.7	541	39.1	26	1.9	3,883	37.2
RKWEILL700	21	2.3	1,859	29.8	13	36.2	3,475	41.8
RKWEILLNA265	274	0.2	41,195	20.8	245	8.6	66,231	21.1
ROBSINR22	0	0.0	0	0.0	194	0.3	72,864	13.0
ROLSCHLS	0	0.0	0	0.0	119	0.4	8,178	19.4

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
RYAN ST3	0	0.0	0	0.0	82	0.6	2,941	12.9
RYAN STA	0	0.0	0	0.0	9	5.5	557	36.8
SCHEMPDISCUS	0	0.0	0	0.0	42	1.2	4,991	11.4
SCHLERASK21	0	0.0	0	0.0	33	1.5	7,588	17.3
SCHLERASW15	0	0.0	0	0.0	30	1.7	829	28.4
SCHLERASW19	0	0.0	0	0.0	57	0.9	4,089	16.9
SCHLERASW20	0	0.0	0	0.0	93	0.5	5,267	15.8
SCHLERK8	0	0.0	0	0.0	18	2.6	527	39.2
SCHLERKA6	0	0.0	0	0.0	45	1.1	1,715	14.9
SCWZERGL64	0	0.0	0	0.0	156	0.3	57,837	11.7
SCWZERSG1	7	192.7	288	199.6	598	0.1	67,802	74.8
SCWZERSG2	0	0.0	0	0.0	313	0.2	67,217	15.6
SEMCO MODEL T	0	0.0	0	0.0	18	2.7	180	0.3
SKRSKYS55	0	0.0	0	0.0	14	3.6	924	17.5
SKRSKYS58	0	0.0	0	0.0	17	2.9	2,241	28.6
SKRSKYS58T	0	0.0	0	0.0	19	2.5	7,227	31.9
SKRSKYS61	3	57.1	1,252	51.0	11	4.3	9,565	30.7
SKRSKYS76	122	10.3	4,321	20.4	138	0.4	68,687	16.8
SLINDS100	4	167.1	33	174.0	227	0.2	14,988	15.2
SMITH 600	310	6.5	17,964	26.2	336	0.1	38,452	13.0
SNIAS 350	0	0.0	0	0.0	193	0.3	105,178	14.3
SNIAS SA341	0	0.0	0	0.0	13	3.6	1,904	44.9

8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SOCATAMS894	8	38.9	127	45.7	31	1.6	2,075	13.3
SOCATARALLYE	1	91.5	21	88.9	16	3.0	1,184	17.5
SOCATATB10	15	56.0	653	130.9	40	1.2	3,313	37.7
SOCATATB20	82	10.1	1,460	26.1	100	0.5	13,616	15.4
SPERTHCIRRUS	0	0.0	0	0.0	87	0.6	6,052	12.4
SPERTHNIMBUS	0	0.0	0	0.0	45	1.1	3,607	21.5
SPERTHVENTUS	0	0.0	0	0.0	44	1.1	5,357	18.3
STNSON10	0	0.0	0	0.0	29	1.7	566	51.0
STNSONJR	0	0.0	0	0.0	12	4.1	170	23.5
STNSONL5	0	0.0	0	0.0	39	1.3	2,210	29.4
STNSONSR9	0	0.0	0	0.0	7	6.3	186	41.5
STNSONV77	1	150.6	3	158.6	42	1.2	1,302	17.9
STOLAMRC3	1	202.3	8	234.1	99	0.5	4,233	28.5
SUPAC LA	0	0.0	0	0.0	17	2.8	838	34.4
SWRNGNSA226	139	0.4	16,474	32.3	139	0.4	144,375	8.8
SWRNGNSA227	56	21.6	37,394	48.7	56	21.2	47,236	31.8
SWRNGNSA26	50	1.0	2,857	17.9	50	1.0	6,772	26.1
TCRAFTD	0	0.0	0	0.0	88	0.6	4,790	27.0
TCRAFTA	0	0.0	0	0.0	7	6.3	378	46.2
TCRAFTBC	0	0.0	0	0.0	823	0.1	50,225	13.1
TCRAFTBF	0	0.0	0	0.0	20	2.4	820	12.2
TCRAFTBL	0	0.0	0	0.0	95	0.5	4,488	13.7

4.8 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN
UNDER VMC AND IMC CONDITIONS BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	IMC				VMC			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
TEMCO 11A	2	80.0	26	74.0	10	4.6	612	16.4
TH55	0	0.0	0	0.0	16	3.1	2,303	18.5
THUNDRAX7	0	0.0	0	0.0	72	0.7	3,240	17.1
TMPSONNAVION	63	31.0	850	42.6	406	0.1	29,306	11.6
TRYTEK65	0	0.0	0	0.0	178	0.3	10,128	22.8
TRYTEKK	0	0.0	0	0.0	9	5.2	127	19.9
UNIVACG1	15	81.3	97	92.1	355	0.1	19,808	13.3
UNIVAR108	37	92.4	112	92.4	937	0.1	56,892	14.6
UNIVAR415	0	0.0	0	0.0	1,367	0.0	66,694	17.9
VALENT17	0	0.0	0	0.0	23	2.1	989	23.8
VARGA 2150	7	141.7	15	145.7	119	0.4	8,770	23.9
WACO ASO	0	0.0	0	0.0	9	5.3	342	25.2
WACO GXE	0	0.0	0	0.0	7	6.4	368	38.6
WACO R	0	0.0	0	0.0	9	5.1	226	20.2
WACO UPF7	0	0.0	0	0.0	80	0.6	7,793	30.6
WACO YK	0	0.0	0	0.0	14	3.5	370	25.0
WSK M18	0	0.0	0	0.0	33	1.5	9,528	85.9
WTHRLLY201	0	0.0	0	0.0	45	1.1	11,316	22.3
TOTALS	73,328	1.7	3,701,432	3.9	209,072	0.1	29,816,992	1.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

CHAPTER V

FUEL CONSUMPTION

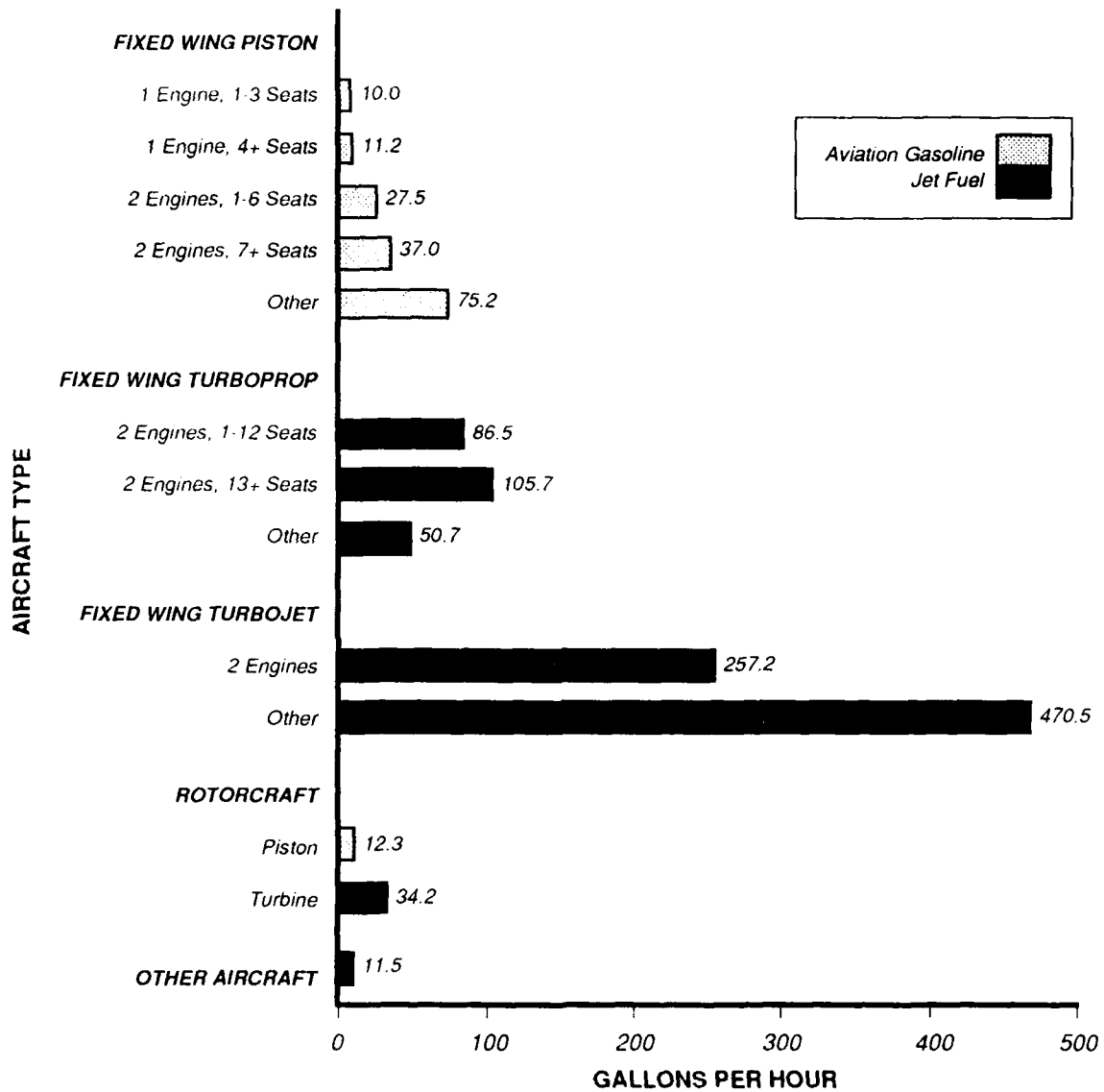
In 1988, the general aviation aircraft fleet consumed more than 1.1 billion gallons of fuel, consisting of 398 million gallons of aviation gasoline and 746 million gallons of jet fuel. This chapter presents three tables and three figures. Table 5.1 gives consumption statistics, and Table 5.2 shows, by aircraft type, fuel consumption by fuel grade, listing average gallons per hour, fuel use in millions of gallons, and percent of standard error. Table 5.2 also provides data on the other aircraft types' fuel consumption by fuel grade. The final table in this chapter, Table 5.3, presents data on the average rate of fuel consumption and estimated fuel use in millions of gallons by SDR Manufacturer/Model groups.

Figures 5.1 and 5.2 show, by aircraft type, fuel consumption rates and estimated fuel consumption of the general aviation fleet, respectively. Figure 5.3 depicts the percentage distribution of fuel consumed by the general aviation fleet by fuel grade.

Some interesting points to be derived from the tables are:

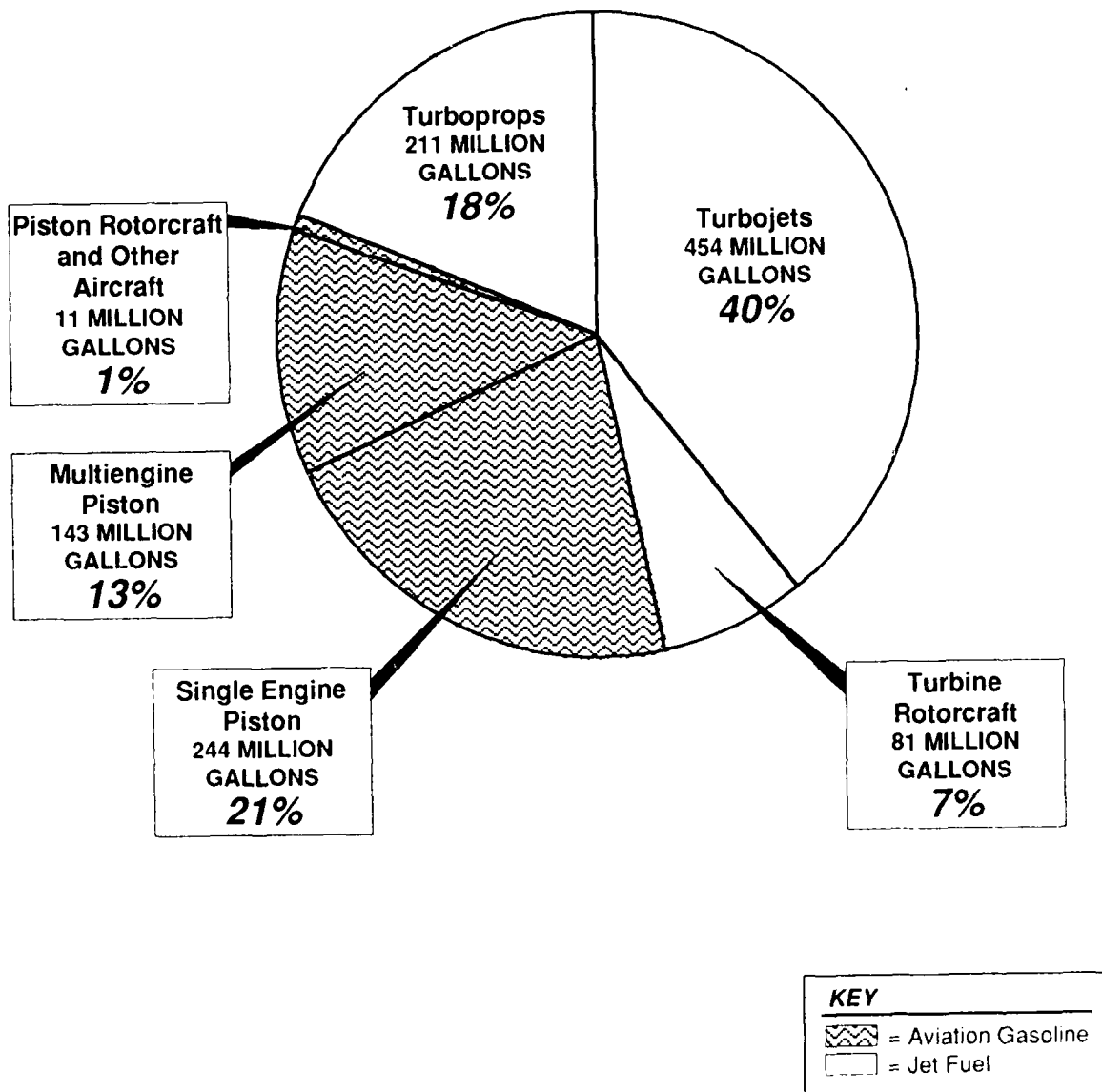
- o Turbojets, although representing only 2 percent of active aircraft, burned 40 percent of all the fuel consumed by the general aviation fleet in 1988.
- o Fixed wing piston aircraft, with low fuel consumption rates, nevertheless accounted for approximately 34 percent of the fuel consumed in 1988, due to their large numbers.
- o Piston-powered aircraft consumed 388 million gallons of gasoline, including approximately 22 million gallons of 80 octane gasoline, 86 million gallons of 100 octane gasoline, 254 million gallons of 100 octane low lead gasoline, and 22 million gallons of automobile gasoline.

Figure 5.1
1988 AVERAGE FUEL CONSUMPTION RATES
BY AIRCRAFT TYPE



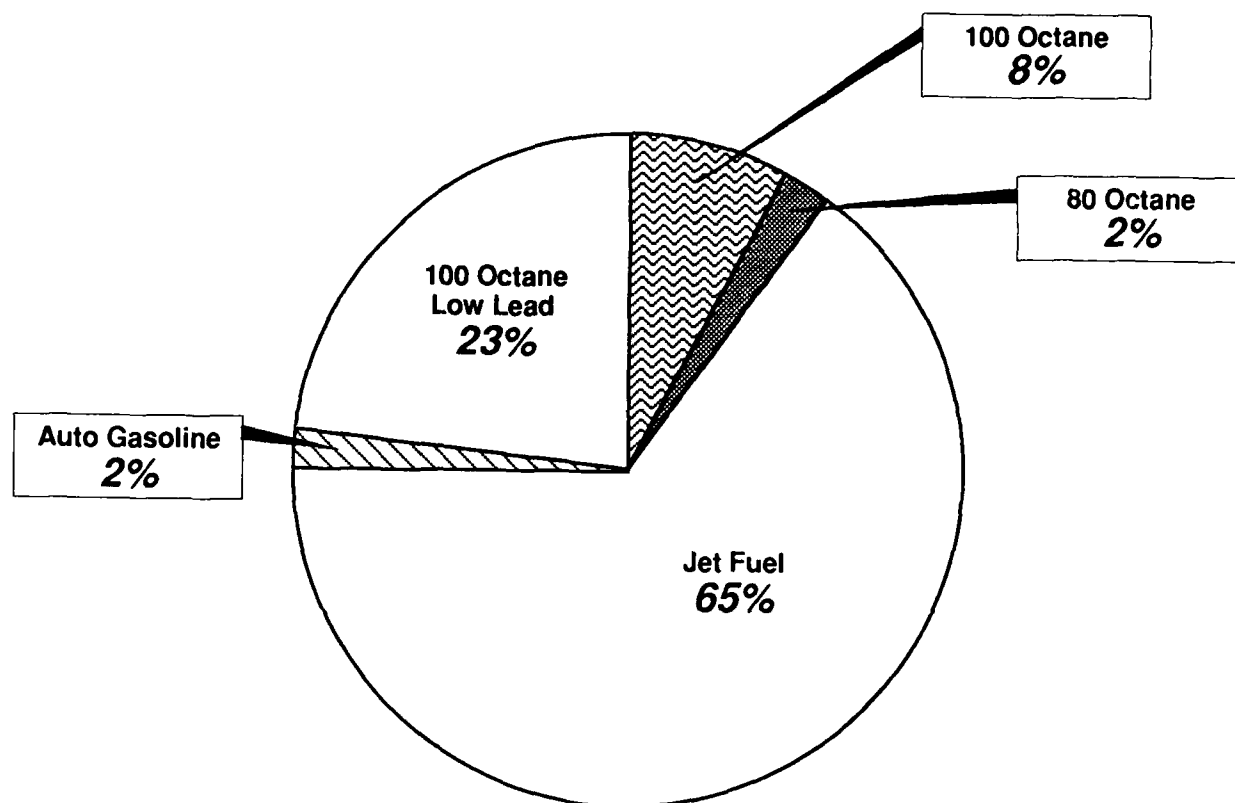
SOURCE: Table 5.1

Figure 5.2
1988 ESTIMATED FUEL CONSUMPTION
BY AIRCRAFT TYPE



SOURCE: Table 5.1

Figure 5.3
1988 GENERAL AVIATION FUEL CONSUMPTION
BY FUEL GRADE



SOURCE: Table 5.2

5.1 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
FIXED WING			
FIXED WING - PISTON			
1 ENG: 1-3 SEATS	10.0	84.1	4.2
1 ENG: 4+ SEATS	11.2	160.0	2.7
1 ENGINE: TOTAL	10.8	244.1	2.3
2 ENG: 1-6 SEATS	27.5	64.0	4.5
2 ENG: 7+ SEATS	37.0	76.0	9.2
2 ENGINE: TOTAL	31.3	140.0	5.4
PISTON: OTHER	75.2	2.8	23.7
PISTON: TOTAL	13.4	386.9	2.4
FIXED WING - TURBOPROP			
2 ENG: 1-12 SEATS	86.5	134.2	5.6
2 ENG: 13+ SEATS	105.7	72.6	11.3
2 ENGINE: TOTAL	91.6	206.8	5.4
TURBOPROP: OTHER	50.7	4.2	34.3
TURBOPROP: TOTAL	90.1	211.0	5.3
FIXED WING - TURBOJET			
2 ENGINE: TOTAL	257.2	393.1	6.1

5.1 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
TURBOJET: OTHER	470.5	60.7	24.7
TURBOJET: TOTAL	278.6	453.8	6.2
FIXED WING: TOTAL	27.4	1,051.7	3.0
ROTORCRAFT			
PISTON	12.3	7.5	13.6
TURBINE	34.2	81.4	6.9
ROTORCRAFT: TOTAL	28.4	89.0	6.4
OTHER	11.5	3.4	48.7
TOTAL	27.4	1,144.1	2.8
TOTAL: JET FUEL	118.8	746.2	4.1
TOTAL: AVIATION GASOLINE	13.4	397.9	2.4

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

5.2 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY AIRCRAFT TYPE

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOW LEAD	AUTO GAS	JET FUEL	
FIXED WING						
FIXED WING - PISTON						
1 ENG: 1-3 SEATS						
AVERAGE GPH	8.1	12.5	9.0	10.2	N/A	10.0
FUEL USE (mil gal)	11.5	19.2	38.4	15.2	N/A	84.1
% STD. ERROR	11.3	16.0	7.7	12.9	N/A	4.2
1 ENG: 4+ SEATS						
AVERAGE GPH	10.0	11.5	11.3	9.8	N/A	11.2
FUEL USE (mil gal)	9.7	33.9	108.8	6.7	N/A	160.0
% STD. ERROR	3.9	3.7	3.1	4.1	N/A	2.7
1 ENGINE: TOTAL						
AVERAGE GPH	9.0	11.8	10.6	10.0	N/A	10.8
FUEL USE (mil gal)	21.2	53.2	147.2	21.9	N/A	244.1
% STD. ERROR	6.4	6.2	3.0	9.0	N/A	2.3
2 ENG: 1-6 SEATS						
AVERAGE GPH	20.7	27.0	27.7	20.0	N/A	27.5
FUEL USE (mil ga)	0.2	13.2	50.2	0.2	N/A	64.0
% STD. ERROR	32.8	7.3	6.0	37.6	N/A	4.5
2 ENG: 7+ SEATS						
AVERAGE GPH	42.0	38.7	34.7	N/A	N/A	37.0
FUEL USE (mil gal)	0.1	19.3	53.7	N/A	N/A	76.0
% STD. ERROR	59.5	15.7	10.4	N/A	N/A	9.2
2 ENGINE: TOTAL						
AVERAGE GPH	22.0	31.7	30.5	20.0	N/A	31.3
FUEL USE (mil gal)	0.2	32.5	103.9	0.2	N/A	140.0
% STD. ERROR	28.7	9.8	6.1	37.6	N/A	5.4
PISTON: OTHER						
AVERAGE GPH	57.5	250.0	70.4	22.0	N/A	75.2
FUEL USE (mil gal)	0.0	0.1	2.7	0.0	N/A	2.8
% STD. ERROR	84.3	174.0	29.7	78.1	N/A	23.7
PISTON: TOTAL						
AVERAGE GPH	9.0	14.4	13.6	10.1	N/A	13.4
FUEL USE (mil gal)	21.5	85.8	253.8	22.1	N/A	386.9
% STD. ERROR	6.3	5.4	3.1	9.0	N/A	2.4

5.2 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOW LEAD	AUTO GAS	JET FUEL	
FIXED WING - TURBOPROP						
2 ENG: 1-12 SEATS						
AVERAGE GPH						
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	86.5	86.5
% STD. ERROR	N/A	N/A	N/A	N/A	134.6	134.2
					5.8	5.6
2 ENG: 13+ SEATS						
AVERAGE GPH	N/A	N/A	N/A	N/A	106.0	105.7
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	73.2	72.6
% STD. ERROR	N/A	N/A	N/A	N/A	11.3	11.3
2 ENGINE: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	91.6	91.6
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	207.8	206.8
% STD. ERROR	N/A	N/A	N/A	N/A	5.5	5.4
TURBOPROP: OTHER						
AVERAGE GPH	N/A	N/A	N/A	N/A	50.9	50.7
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	4.2	4.2
% STD. ERROR	N/A	N/A	N/A	N/A	43.1	34.3
TURBOPROP: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	90.1	90.1
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	212.0	211.0
% STD. ERROR	N/A	N/A	N/A	N/A	5.4	5.3
FIXED WING - TURBOJET						
2 ENGINE: TOTAL						
AVERAGE GPH						
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	258.8	257.2
% STD. ERROR	N/A	N/A	N/A	N/A	394.7	393.1
					6.4	6.1
TURBOJET: OTHER						
AVERAGE GPH	N/A	N/A	N/A	N/A	476.5	470.5
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	60.8	60.7
% STD. ERROR	N/A	N/A	N/A	N/A	25.4	24.7
TURBOJET: TOTAL						
AVERAGE GPH	N/A	N/A	N/A	N/A	280.3	278.6
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	455.5	453.8
% STD. ERROR	N/A	N/A	N/A	N/A	6.5	6.2

5.2 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY AIRCRAFT TYPE

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOW LEAD	AUTO GAS	JET FUEL	
FIXED WING: TOTAL						
AVERAGE GPH	9.0	14.4	13.6	10.1	169.2	27.4
FUEL USE (mil gal)	21.5	85.8	253.8	22.1	667.5	1,051.7
% STD. ERROR	6.3	5.4	3.1	9.0	4.7	3.0
ROTORCRAFT						
PISTON						
AVERAGE GPH	12.2	13.3	11.7	7.2	N/A	12.3
FUEL USE (mil gal)	0.1	2.3	4.8	0.1	N/A	7.5
% STD. ERROR	28.8	18.6	12.9	30.0	N/A	13.6
TURBINE						
AVERAGE GPH	N/A	N/A	N/A	N/A	34.2	34.2
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	81.4	81.4
% STD. ERROR	N/A	N/A	N/A	N/A	27.8	6.9
ROTORCRAFT: TOTAL						
AVERAGE GPH	12.2	13.3	11.7	7.2	34.2	28.4
FUEL USE (mil gal)	0.1	2.3	4.8	0.1	81.4	89.0
% STD. ERROR	28.8	18.6	12.9	30.0	27.8	6.4
OTHER						
AVERAGE GPH	0.0	11.9	3.2	3.0	0.0	11.5
FUEL USE (mil gal)	0.0	3.4	0.0	0.0	0.0	3.4
% STD. ERROR	0.0	51.1	201.9	232.5	0.0	48.7
TOTAL						
AVERAGE GPH	9.1	14.3	13.5	10.0	118.9	27.4
FUEL USE (mil gal)	21.5	91.5	258.6	22.2	748.9	1,144.1
% STD. ERROR	6.3	5.4	3.0	8.9	5.2	2.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

WHERE THE NOTATION "N/A" APPEARS, THE FUEL GRADE IS NOT APPLICABLE FOR THE SPECIFIED AIRCRAFT TYPE.

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
OTHER 1	8.7	5.0	13.5
OTHER 2	10.9	1.1	11.2
OTHER 3	42.0	0.8	21.0
OTHER 4	43.5	1.2	34.3
OTHER 5	53.8	0.9	57.6
OTHER 6	102.9	24.7	21.9
OTHER 7	84.9	19.2	28.3
OTHER 8	55.0	1.9	72.3
OTHER 9	168.5	32.1	33.7
OTHER 10	606.0	31.2	44.4
OTHER 11	10.0	0.9	32.9
OTHER 12	35.1	6.9	33.3
OTHER 13	11.7	3.4	49.0
ADAMS A50S	0.0	0.0	0.0
AERORSJ2	10.0	0.0	52.3
AEROSPAS355	50.6	1.7	15.8
AEROSPAS316	50.2	3.4	27.2
AGUSTA205	87.0	1.0	21.6
AGUSTAA109	59.0	0.6	46.7
AIRPTSA	15.6	0.2	22.4
AIRSPC18	10.1	0.0	29.7

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
AIRTRCAT300	35.4	6.1	20.2
AIRTRCAT400	0.0	0.0	0.0
AMD FALC10	227.6	10.8	10.1
AMD FALC20	357.8	22.4	12.3
AMD FALC50	337.6	17.5	9.2
AMTR TMK	0.0	0.0	0.0
ARCTICS1A	4.6	0.0	30.4
ARCTICS1B1	8.5	0.0	20.0
ARONCA15	9.1	0.1	17.2
ARONCA58	4.5	0.0	37.7
ARONCA65	4.3	0.0	29.5
ARONCAC3	3.5	0.0	36.1
AVIANWFALCON	0.0	0.0	0.0
AVIANWSKYHWK	0.0	0.0	0.0
AYRES S2	39.5	9.3	15.5
BAG B206	38.4	0.0	116.5
BAG DH125	239.4	8.3	8.4
BALWKSFIREFY	0.0	0.0	0.0
BBAVIA11	4.7	0.1	22.2
BBAVIA7	5.4	0.8	15.8
BBAVIA8	9.1	0.2	23.3

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
BEECH 100	80.5	10.0	25.0
BEECH 17	21.6	0.1	35.3
BEECH 18	60.8	13.6	39.7
BEECH 1900	114.1	15.0	22.0
BEECH 200	99.7	30.6	8.3
BEECH 23	9.6	2.9	17.2
BEECH 300	108.0	5.3	13.5
BEECH 33	14.0	5.8	28.2
BEECH 35	12.8	6.6	7.2
BEECH 36	14.5	5.3	17.2
BEECH 45	12.5	0.3	23.7
BEECH 50	36.1	0.8	26.3
BEECH 55	25.7	8.4	10.8
BEECH 56	49.3	0.4	33.6
BEECH 58	32.0	10.8	10.6
BEECH 60	43.8	2.2	19.3
BEECH 65	39.6	0.9	44.7
BEECH 76	19.6	1.2	29.6
BEECH 77	6.6	0.3	19.7
BEECH 80	42.3	1.1	37.9
BEECH 90	73.5	23.4	10.4

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
BEECH 95	19.9	0.9	23.5
BEECH 99	87.9	7.3	31.6
BELL 204	88.6	2.1	24.4
BELL 206	28.4	34.1	11.7
BELL 212	100.7	3.2	27.7
BELL 222	83.0	1.5	25.4
BELL 412	97.1	4.6	35.2
BELL 47	17.5	2.4	33.0
BLANCA11	5.2	0.0	66.4
BLANCA1413	9.6	0.0	100.9
BLANCA1419	12.0	0.1	19.6
BLANCA17	14.5	1.2	28.1
BLANCA7	8.4	2.3	37.8
BLANCA8	8.9	0.2	18.7
BNORM BN2	29.7	0.3	68.7
BOEING75	16.5	0.6	25.1
BOLKMS105	53.0	3.0	18.0
BOLKMS117	78.0	1.4	60.6
BRAERODH125	339.2	15.5	28.4
BRWSTFLEET2	6.6	0.0	23.0
BRWSTFLEET7	8.0	0.0	53.0

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
BUKER 131	9.5	0.0	45.9
CAMRONMODELO	0.0	0.0	0.0
CASA C212	90.0	0.1	0.0
CESSNA120	5.4	0.3	15.7
CESSNA140	5.2	0.4	25.4
CESSNA150	6.1	20.8	7.8
CESSNA170	8.1	1.1	11.9
CESSNA172	8.3	29.3	6.3
CESSNA175	9.7	0.6	14.6
CESSNA177	9.7	3.0	10.5
CESSNA180	12.8	3.8	17.7
CESSNA182	12.9	21.0	7.9
CESSNA185	15.3	3.8	20.5
CESSNA188	17.9	4.8	14.5
CESSNA190	16.8	0.1	42.4
CESSNA195	18.8	0.8	30.4
CESSNA205	12.6	0.3	17.9
CESSNA206	14.7	6.0	13.0
CESSNA207	15.5	3.3	18.8
CESSNA208	47.7	0.7	31.0
CESSNA210	15.5	12.1	8.1

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mill gal)	PERCENT STANDARD ERROR
CESSNA303	26.7	1.3	12.9
CESSNA305	9.6	0.4	30.6
CESSNA310	27.1	7.4	14.9
CESSNA320	29.1	0.7	35.9
CESSNA335	34.0	0.3	12.4
CESSNA336	20.1	0.1	29.0
CESSNA337	21.8	2.1	13.0
CESSNA340	35.1	6.2	11.0
CESSNA401	32.7	1.3	22.4
CESSNA402	34.0	8.7	25.0
CESSNA404	41.8	2.2	21.6
CESSNA411	36.7	0.3	50.1
CESSNA414	36.0	5.1	11.9
CESSNA421	41.8	8.8	17.1
CESSNA425	69.0	3.3	10.2
CESSNA441	73.0	6.0	14.4
CESSNA500	162.2	36.1	15.2
CESSNA501	184.8	2.9	18.7
CESSNA650	227.1	12.1	22.1
CESSNA750	32.3	0.0	53.0
CESSNAUC77	8.1	0.0	78.7

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
CESSNAUC94	9.0	0.0	25.5
CHILD S1	11.1	0.0	22.9
CHILD S2	11.4	0.2	28.3
CNDAIRCL600	354.9	13.3	11.8
CNTRAR101	0.0	0.0	0.0
COMETH185	5.3	0.0	43.1
CONAERLA4	10.3	0.4	23.7
CURTISJR	3.0	0.0	56.9
CURTISROBIN	12.0	0.0	36.3
CURTISTRVAIR	12.7	0.0	19.3
CVAC 240	191.0	0.7	54.1
CVAC BT13	24.6	0.0	25.0
CVAC STC580	325.4	1.6	36.0
DART G	9.5	0.0	99.0
DHAV DHC1	10.1	0.0	31.6
DHAV DHC2	23.9	1.7	19.6
DHAV DHC3	25.0	0.6	28.4
DHAV DHC6	85.9	6.5	40.0
DHAVXXDH82	7.6	0.0	18.9
DORNERDO228	0.0	0.0	0.0
DOUG A26	205.4	0.1	81.5

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
DOUG DC3	96.0	3.3	68.2
DOUG DC4	249.7	0.3	148.2
DOUG DC6	400.0	1.6	0.0
EAGLE DW	17.8	0.3	15.7
EIRVON20	1.4	0.0	83.8
EMAIR MA1	31.5	0.3	51.7
EMB 110	78.9	4.5	18.4
ENSTRMF28	13.7	0.6	25.5
FLEET 16B	8.6	0.0	25.6
FRCHLD24	10.2	0.0	32.5
FRCHLDC119	0.0	0.0	0.0
FRCHLDM62	11.4	0.0	35.6
GALAXYGX7	0.0	0.0	0.0
GENBALAX6	0.0	0.0	0.0
GLASER300	0.0	0.0	0.0
GLASER400	0.0	0.0	0.0
GLASFL201	0.0	0.0	0.0
GLASFLH301	0.0	0.0	0.0
GROB 103CAT	0.0	0.0	0.0
GROB 109	3.6	0.0	20.9
GROB ASTIR	0.0	0.0	0.0

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
GRTLS2T1	9.5	0.1	26.4
GRUMANS16	0.0	0.0	0.0
GRUMAVAA1	6.5	0.3	17.7
GRUMAVAA5	9.7	1.3	14.4
GRUMAVG1159	574.6	6.9	13.6
GRUMAVG164	32.5	13.8	13.3
GRUMAVG21	42.2	0.2	55.0
GRUMAVTEM	84.0	0.1	52.6
GULSTM112	11.4	0.6	22.3
GULSTM500	29.3	1.9	18.4
GULSTM520	25.0	0.0	76.9
GULSTM560	26.6	0.1	25.2
GULSTM680	42.5	1.0	25.3
GULSTM680TP	69.2	0.5	43.3
GULSTM690TC	78.8	0.6	11.7
GULSTM690TP	77.1	7.0	13.5
GULSTM6A1	6.5	0.2	26.8
GULSTM6A5	8.7	0.4	9.6
GULSTMG1159	427.3	35.8	28.3
GULSTMG159	248.0	6.0	30.5
GULSTMG44	23.3	0.1	52.7

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
GULSTMG73	79.5	0.9	46.2
GULSTMGA7	15.9	0.1	10.1
H23/HTE	18.6	0.1	51.9
H34/55	0.0	0.0	0.0
HELIO H250	13.0	0.0	34.5
HELIO H295	14.9	0.3	38.4
HELIO H391	11.8	0.0	40.4
HILLERFH1100	18.8	0.1	50.4
HILLERUH12	20.2	0.7	47.1
HSPAVNHA200	0.0	0.0	0.0
HUGHES269	11.1	2.2	18.5
HUGHES369	23.3	4.7	30.0
HWKSLYDH104	0.0	0.0	0.0
HWKSLYDH125	259.5	13.8	16.1
HYNES B2	11.1	0.0	19.7
INTRCP200	14.7	0.0	28.3
ISRAEL1121	333.0	6.2	32.5
ISRAEL1123	381.0	2.0	16.7
ISRAEL1124	229.0	19.4	10.4
JBNSTRDGA15	21.5	0.0	81.0
LAIFN10	0.0	0.0	0.0

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
LEAR 23	250.5	1.9	25.5
LEAR 24	256.5	16.8	29.7
LEAR 25	295.4	41.0	16.5
LEAR 35	199.1	38.8	9.0
LEAR 55	203.0	9.2	9.3
LET L13	0.0	0.0	0.0
LKHEED12A	44.0	0.0	43.9
LKHEED1329	460.4	11.9	15.0
LKHEED18	103.5	0.1	49.6
LKHEEDP2V	0.0	0.0	0.0
LKHEEDPV1	150.0	0.0	71.3
LKHEEDT33	338.1	0.1	50.8
LOSCOM8	5.9	0.3	23.9
MAULE M4	9.9	0.1	29.3
MAULE M5	11.9	0.4	14.9
MAULE M6	12.4	0.1	14.3
MCLISHFUNKB	5.7	0.0	22.1
MEYERSOTW	9.2	0.0	27.8
MNCOUP90	8.3	0.0	53.6
MNMITM18	4.2	0.0	32.6
MOONEYM20	10.1	6.9	10.5

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
MRCHTIS205	10.7	0.0	26.3
MTSBSIMU2	88.2	4.9	25.5
MTSBSIMU300	186.7	4.0	15.5
MULTECD16	17.2	0.0	39.9
NAMER B25	149.6	0.3	27.0
NAMER F51	62.8	0.3	32.8
NAMER NA260	46.8	0.2	44.7
NAMER T6	29.6	0.9	17.6
NATBAL752	0.0	0.0	0.0
NAVAL N3N	15.0	0.0	21.8
NAVIONNAVION	11.5	0.4	15.8
NORD 3202	16.0	0.0	128.1
NORD SV4	9.1	0.0	36.5
NORWST65	4.4	0.0	23.6
ORLHELH19	0.0	0.0	0.0
ORLHELSS58	0.0	0.0	0.0
PARTENP68	22.4	0.2	40.5
PICARDAX6	0.0	0.0	0.0
PILATSB4	0.0	0.0	0.0
PIPER 600	36.3	1.8	18.2
PIPER E2	3.0	0.0	32.6

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
PIPER J2	3.5	0.0	26.2
PIPER J3	4.6	0.6	13.9
PIPER J4	4.6	0.0	47.1
PIPER J5	5.7	0.1	40.8
PIPER PA12	7.6	0.5	16.0
PIPER PA14	8.9	0.1	23.5
PIPER PA15	4.6	0.0	37.4
PIPER PA16	6.8	0.0	40.8
PIPER PA17	4.4	0.0	22.1
PIPER PA18	7.9	2.2	23.2
PIPER PA20	7.9	0.1	17.8
PIPER PA22	7.8	1.5	10.8
PIPER PA23	25.5	8.1	14.2
PIPER PA24	12.8	2.8	10.2
PIPER PA25	14.5	2.9	16.8
PIPER PA28	9.5	25.8	6.0
PIPER PA30	16.5	2.5	14.6
PIPER PA31	37.7	18.2	13.6
PIPER PA31T	73.7	8.6	15.6
PIPER PA32	15.9	9.1	13.3
PIPER PA34	24.2	9.3	17.7

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
PIPER PA36	20.3	1.0	23.3
PIPER PA38	6.2	1.4	18.4
PIPER PA42	95.7	3.7	13.1
PIPER PA44	18.3	2.1	24.2
PIPER PA46	17.0	1.3	13.2
PROPTJ200	15.0	0.1	41.5
RAVEN RX6	0.0	0.0	0.0
RAVEN S50	0.0	0.0	0.0
RAVEN S55	0.0	0.0	0.0
RAVEN S57	0.0	0.0	0.0
RAVEN S60	0.0	0.0	0.0
RAVEN S66	0.0	0.0	0.0
RKWEILL500	30.9	0.1	38.2
RKWEILL700	41.2	0.2	32.4
RKWEILLNA265	411.9	43.5	30.8
ROBSINR22	7.7	0.6	13.6
ROLSCHLS	0.0	0.0	0.0
RYAN ST3	9.9	0.0	22.4
RYAN STA	7.2	0.0	82.2
SCHEMPDISCUS	0.0	0.0	0.0
SCHLERASK21	0.0	0.0	0.0

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
SCHLERASW15	0.0	0.0	0.0
SCHLERASW19	0.0	0.0	0.0
SCHLERASW20	0.0	0.0	0.0
SCHLERK8	0.0	0.0	0.0
SCHLERKA6	0.0	0.0	0.0
SCWZERGL64	34.3	2.0	15.4
SCWZERSG1	0.0	0.0	0.0
SCWZERSG2	0.0	0.0	0.0
SEMCO MODEL T	0.0	0.0	0.0
SKRSKYS55	39.0	0.0	48.5
SKRSKYS58	80.9	0.2	78.7
SKRSKYS58T	122.1	0.9	51.4
SKRSKYS61	156.4	1.7	34.2
SKRSKYS76	90.9	6.6	17.8
SLINDS100	9.3	0.1	18.9
SMITH 600	35.6	1.9	13.8
SNIAS 350	37.0	3.6	19.3
SNIAS SA341	41.8	0.1	57.8
SOCATAMS894	10.1	0.0	13.0
SOCATAPALLYE	8.9	0.0	17.9
SOCATATB10	10.5	0.0	55.0

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
SOCATATB20	13.7	0.2	14.3
SPHRTHCIRRUS	0.0	0.0	0.0
SPHRTHNIMBUS	0.0	0.0	0.0
SPHRTHVENTUS	0.0	0.0	0.0
STBROSSD3	0.0	0.0	0.0
STNSON10	5.6	0.0	48.4
STNSONJR	14.7	0.0	34.5
STNSONL5	10.8	0.0	32.9
STNSONSR9	15.9	0.0	44.2
STNSONV77	16.5	0.0	30.3
STOLAMRC3	14.4	0.1	30.3
SUPAC LA	5.6	0.0	38.5
SUPAC V	0.0	0.0	0.0
SWRNGNSA226	91.7	9.1	34.8
SWRNGNSA227	93.8	7.9	21.0
SWRNGNSA26	67.9	0.6	40.8
TCRAFTD	4.3	0.0	40.4
TCRAFTA	3.3	0.0	59.6
TCRAFTBC	4.5	0.2	19.8
TCRAFTBF	4.3	0.0	24.7
TCRAFTBL	4.1	0.0	21.1

5.3 1988 GENERAL AVIATION TOTAL FUEL CONSUMED AND AVERAGE FUEL CONSUMPTION RATE
BY FUEL GRADE BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
TEMCO 11A	10.2	0.0	32.8
TH55	10.5	0.0	30.6
THUNDRAX7	0.0	0.0	0.0
TMPSONNAVION	12.6	0.4	13.3
TRYTEK65	4.4	0.0	24.0
TRYTEKK	3.4	0.0	40.3
UNIVACGC1	8.4	0.2	17.2
UNIVAR108	9.6	0.5	21.1
UNIVAR415	5.2	0.3	20.9
VALENT17	3.3	0.0	24.7
VARGA 2150	8.1	0.1	25.2
WACO ASO	15.6	0.0	22.0
WACO GXE	9.5	0.0	35.1
WACO R	8.2	0.0	23.8
WACO UPF7	14.4	0.1	29.3
WACO YK	13.1	0.0	32.5
WSK M18	0.0	0.0	0.0
WTHRLY201	23.4	0.3	27.2
TOTAL	27.4	1144.0	0.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

CHAPTER VI

AIRFRAME HOURS AND ENGINE ACTIVITY

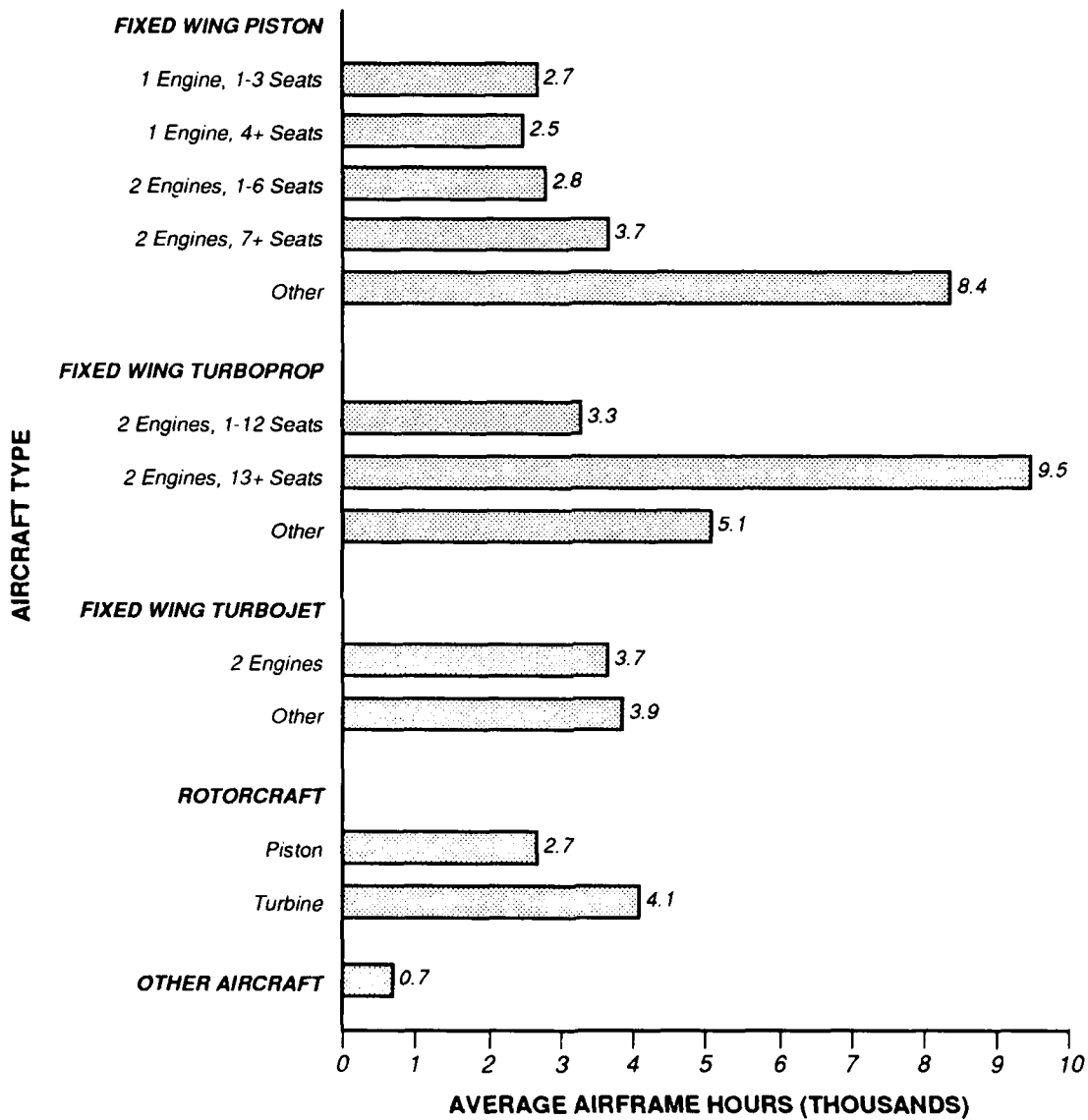
The subject of aircraft aging is becoming increasingly important because of recent questions raised about the safety of commercial air carriers relative to the age of those air carriers. Similar questions might be asked of the general aviation fleet. Data in this chapter can serve as input to studies correlating age and safety.

This chapter presents three tables and one figure: Table 6.1 gives data on the average airframe hours per active aircraft by aircraft type; Table 6.2 shows the average airframe hours per active aircraft by SDR Aircraft Manufacturer/Model Group; Table 6.3 shows the number of engines on active aircraft and the average hours for each aircraft by engine SDR Manufacturer/Model Group; and Figure 6.1 graphically displays the data provided in Table 6.1.

Major findings of this chapter include:

- o The average lifetime airframe hours for the active general aviation population is approximately 2,600 hours.
- o The fixed wing, two engine turboprops with 13 or more seats averaged the most airframe hours, over 9,500, with an estimated active aircraft population of only 826. In contrast, the total active piston population of over 187,000 averaged 2,598 airframe hours per active aircraft. Table 6.2 presents similar statistics.
- o The average hours per engine data presented in Table 6.3 vary considerably among the different aircraft engine manufacturers.

Figure 6.1
1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS
PER ACTIVE AIRCRAFT BY AIRCRAFT TYPE



SOURCE: Table 6.1

6.1 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY AIRCRAFT TYPE

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AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS	84,531	59,553	1.3	70.5	0.9	160,020,032	2.2	2,665.8	1.9
1 ENG: 4+ SEATS	118,382	105,207	0.6	88.9	0.6	261,055,440	1.7	2,476.4	1.6
1 ENGINE: TOTAL	202,913	164,760	0.6	81.2	0.5	421,075,424	1.3	2,542.2	1.2
2 ENG: 1-6 SEATS	17,511	15,143	1.8	86.5	1.5	42,598,688	3.5	2,832.9	2.8
2 ENG: 7+ SEATS	8,806	7,554	2.4	85.8	2.0	31,161,332	9.8	3,722.5	8.7
2 ENGINE: TOTAL	26,317	22,698	1.4	86.2	1.2	73,760,024	4.6	3,092.7	3.6
PISTON: OTHER	181	99	21.2	54.7	11.6	845,885	32.7	8,356.1	30.2
PISTON: TOTAL	229,411	187,556	0.6	81.8	0.5	495,681,344	1.3	2,598.3	1.2
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS	4,543	4,231	1.8	93.1	1.7	14,070,554	5.4	3,302.8	5.4
2 ENG: 13+ SEATS	1,010	826	5.3	81.8	4.4	8,621,355	13.4	9,543.8	8.4
2 ENGINE: TOTAL	5,553	5,057	1.8	91.1	1.6	22,691,908	6.1	4,055.5	4.5
TURBOPROP: OTHER	230	202	6.9	87.8	6.1	946,922	26.4	5,060.7	28.1
TURBOPROP: TOTAL	5,783	5,259	1.7	90.9	1.6	23,638,830	5.9	4,095.0	4.5

6.1 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	4,061	3,821	2.1	94.1	1.9	14,506,452	5.7	3,659.0	5.5
TURBOJET: OTHER	494	367	5.4	74.3	4.0	1,421,478	26.7	3,895.9	29.1
TURBOJET: TOTAL	4,555	4,187	2.0	91.9	1.8	15,927,930	5.7	3,683.0	5.8
FIXED WING: TOTAL	239,749	197,003	0.6	82.2	0.5	535,248,160	1.3	2,642.3	1.1
ROTORCRAFT									
PISTON	5,334	2,584	7.9	48.4	3.8	8,114,552	11.8	2,725.2	7.0
TURBINE	4,434	3,822	2.7	86.2	2.3	15,010,997	8.5	4,077.3	8.6
ROTORCRAFT: TOTAL	9,768	6,406	3.6	65.6	2.3	23,125,548	6.9	3,468.3	6.1
OTHER	9,917	6,857	4.1	69.1	2.8	4,707,034	14.4	689.7	15.0
TOTAL	259,434	210,266	0.5	81.0	0.4	563,080,768	1.2	2,606.4	1.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 17

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
OTHER 1	16,004	9,506	4.9	59.4	2.9	5,177,605	16.8	544.7	16.1
OTHER 2	1,604	1,294	5.0	80.7	4.0	1,768,022	12.6	1,366.5	11.6
OTHER 3	313	165	10.6	52.7	5.6	583,509	16.2	3,537.4	12.2
OTHER 4	256	125	15.0	49.0	7.3	684,593	34.5	5,458.6	31.1
OTHER 5	112	54	35.6	48.1	17.1	402,050	51.0	7,455.6	36.6
OTHER 6	330	305	4.9	92.4	4.5	788,780	18.0	2,588.1	17.3
OTHER 7	296	199	18.2	67.1	12.2	603,844	38.0	3,041.7	33.3
OTHER 8	112	105	7.9	93.7	7.4	636,686	37.5	6,065.6	36.7
OTHER 9	544	404	16.7	74.2	12.4	1,552,949	37.7	3,847.5	33.8
OTHER 10	267	184	10.7	68.8	7.4	739,241	50.4	4,024.9	49.3
OTHER 11	1,941	598	22.5	30.8	6.9	314,138	31.0	525.1	21.4
OTHER 12	408	310	14.5	76.0	11.0	340,929	26.8	1,099.1	22.5
OTHER 13	3,204	2,150	9.4	67.1	6.3	1,558,348	40.7	724.9	39.6
ADAMS A50S	134	121	8.3	90.4	7.5	21,692	16.5	179.1	14.3
AERORSJ2	38	10	38.6	25.4	9.8	2,831	40.4	293.3	12.1
AEROSPAS355	114	99	9.9	86.7	8.6	188,016	21.4	1,903.0	18.9
AEROSPAS316	87	80	18.2	92.0	16.7	553,061	36.6	6,909.8	31.8
AGUSTA205	28	28	0.0	100.0	0.0	212,378	12.8	7,584.9	12.8
AGUSTAA109	68	46	27.0	67.2	18.2	39,992	40.9	875.8	30.6
AIRPTSA	206	121	14.3	58.6	8.4	348,935	16.9	2,889.2	9.1
AIRSPC18	24	16	15.5	65.1	10.1	6,979	18.5	446.5	10.2

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
AIRTRCAT300	428	360	10.6	84.0	8.9	1,211,769	15.4	3,369.5	11.2
AIRTRCAT400	60	60	0.0	100.0	0.0	120,042	17.0	2,000.7	17.0
AMD FALC10	132	132	0.0	100.0	0.0	383,307	14.4	2,903.8	14.4
AMD FALC20	189	187	2.6	99.1	2.5	1,027,129	19.5	5,483.1	19.4
AMD FALC50	95	95	0.0	100.0	0.0	265,970	10.2	2,799.7	10.2
AMTR TMR	21	4	95.2	20.0	19.0	15,540	95.2	3,700.0	0.0
ARCTICS1A	91	27	25.8	29.8	7.7	94,639	28.0	3,487.6	10.8
ARCTICS1B1	25	20	10.4	81.7	8.5	20,410	20.5	998.8	17.6
ARONCA15	196	110	9.8	56.4	5.5	269,123	11.4	2,436.4	5.7
ARONCA58	143	61	26.4	42.4	11.2	143,446	28.1	2,364.6	9.8
ARONCA65	145	53	24.7	36.6	9.0	153,622	26.1	2,898.1	8.3
ARONCAC3	56	15	24.9	26.4	6.6	20,546	27.9	1,390.3	12.6
AVIANWFALCON	28	12	68.3	41.9	28.7	1,949	68.3	166.0	0.0
AVIANWSKYHWK	41	31	16.2	75.8	12.3	8,381	27.7	269.8	22.4
AYRES S2	767	675	7.1	88.0	6.2	3,001,996	12.8	4,495.2	10.8
BAG B206	26	6	115.9	22.2	25.8	26,149	120.7	4,525.8	33.8
BAG DH125	68	68	0.0	100.0	0.0	263,126	11.0	3,869.5	11.0
BALWKSFIREFY	1,693	1,065	12.0	62.9	7.6	174,707	23.7	164.1	20.5
BBAVIA11	802	439	14.8	54.7	8.1	727,815	18.1	1,657.7	10.5
BBAVIA7	3,358	2,227	8.1	66.3	5.4	5,304,049	12.1	2,381.6	8.9
BBAVIA8	226	180	10.8	79.6	8.6	301,038	17.5	1,673.7	13.7

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BEECH 100	241	211	10.0	87.6	8.7	935,467	17.3	4,431.5	14.1
BEECH 17	197	101	24.6	51.4	12.6	184,491	29.9	1,822.5	17.0
BEECH 18	738	373	32.3	50.5	16.3	4,587,884	40.2	12,301.0	24.0
BEECH 1900	69	69	0.0	100.0	0.0	330,648	44.8	4,792.0	44.8
BEECH 200	790	788	1.0	99.7	1.0	2,277,047	10.2	2,890.4	10.1
BEECH 23	2,703	2,433	3.8	90.0	3.5	4,956,217	6.3	2,037.0	5.0
BEECH 300	134	134	0.0	100.0	0.0	111,224	14.7	830.0	14.7
BEECH 33	1,878	1,878	0.0	100.0	0.0	5,718,302	12.0	3,044.9	12.0
BEECH 35	6,656	5,710	3.4	85.8	2.9	19,726,276	5.6	3,454.7	4.4
BEECH 36	2,281	2,161	3.9	94.8	3.7	3,964,896	13.1	1,834.4	12.5
BEECH 45	290	221	10.3	76.2	7.8	1,277,503	13.3	5,778.5	8.4
BEECH 50	297	239	15.6	80.6	12.5	1,022,209	22.3	4,268.6	16.0
BEECH 55	2,126	2,081	2.3	97.9	2.2	4,654,389	8.6	2,236.3	8.3
BEECH 56	61	50	8.1	82.2	6.7	135,723	11.8	2,706.0	8.6
BEECH 58	1,504	1,504	0.0	100.0	0.0	3,151,928	9.4	2,095.7	9.4
BEECH 60	429	426	3.1	99.3	3.1	859,662	23.5	2,018.3	23.2
BEECH 65	115	101	13.1	87.4	11.5	444,985	16.9	4,426.2	10.6
BEECH 76	285	283	1.9	99.3	1.9	472,610	8.4	1,670.2	8.2
BEECH 77	232	205	6.8	88.4	6.0	344,352	11.6	1,679.8	9.4
BEECH 80	157	105	17.1	66.7	11.4	570,461	20.0	5,445.8	10.3
BEECH 90	1,088	1,056	3.8	97.0	3.7	4,545,988	13.1	4,306.9	12.5

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BEECH 95	443	416	7.1	93.8	6.7	1,371,483	16.8	3,300.6	15.2
BEECH 99	117	103	16.9	87.7	14.8	2,597,059	36.3	25,308.4	32.1
BELL 204	184	104	17.9	56.4	10.1	397,146	23.7	3,830.1	15.5
BELL 206	1,884	1,829	2.5	97.1	2.4	8,995,936	12.2	4,918.6	12.0
BELL 212	105	102	8.6	97.0	8.3	462,261	21.6	4,540.1	19.8
BELL 222	74	67	8.2	91.0	7.5	81,787	22.3	1,214.3	20.8
BELL 412	52	52	0.0	100.0	0.0	112,112	31.9	2,156.0	31.9
BELL 47	1,218	817	15.5	67.1	10.4	4,144,656	20.1	5,071.0	12.8
BLANCA11	80	30	31.0	38.0	11.8	47,560	32.0	1,564.5	7.8
BLANCA1413	248	37	96.4	14.9	14.4	79,626	98.1	2,148.7	17.8
BLANCA1419	269	180	12.1	67.0	8.1	342,120	14.2	1,898.9	7.3
BLANCA17	965	840	7.9	87.0	6.9	1,236,603	12.2	1,472.7	9.3
BLANCA7	2,322	1,870	6.5	80.5	5.2	3,722,345	13.2	1,992.6	11.5
BLANCA8	453	384	9.6	84.7	8.1	350,277	15.3	913.3	11.9
BNORM BN2	74	30	64.6	40.0	25.8	238,510	65.9	8,057.8	13.0
BOEING75	1,816	738	14.9	40.6	6.0	3,285,983	19.2	4,455.3	12.1
BOLFMS105	133	133	0.0	100.0	0.0	495,732	30.4	3,727.3	30.4
BOLFMS117	69	37	59.7	53.5	31.9	51,881	59.7	1,405.7	0.5
BRAERODH125	93	93	0.0	100.0	0.0	104,362	13.4	1,122.2	13.4
BRWSTRFLEET2	24	10	17.6	42.9	7.5	25,319	20.6	2,461.6	10.7
BRWSTRFLEET7	23	8	36.8	33.3	12.3	21,324	41.2	2,781.3	18.7

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BUKER 131	31	15	31.5	47.8	15.1	18,900	35.7	1,274.8	16.8
CAMRONMODELO	243	188	16.2	77.5	12.5	34,730	37.1	184.5	33.4
CASA C212	23	23	0.0	100.0	0.0	36,634	7.6	1,592.8	7.6
CESSNA120	849	701	8.0	82.6	6.6	2,475,417	14.1	3,531.4	11.5
CESSNA140	2,306	1,427	9.5	61.9	5.9	5,013,089	16.5	3,512.4	13.5
CESSNA150	18,451	16,124	2.1	87.4	1.8	57,056,264	4.0	3,538.6	3.4
CESSNA170	2,436	1,847	7.4	75.8	5.6	6,681,767	24.7	3,617.5	23.6
CESSNA172	24,435	23,230	1.1	95.1	1.0	59,994,236	3.2	2,582.6	3.0
CESSNA175	1,283	1,073	6.6	83.6	5.5	2,422,875	10.5	2,258.6	8.2
CESSNA177	2,721	2,601	2.7	95.6	2.6	4,871,225	5.3	1,872.6	4.5
CESSNA180	2,721	2,365	5.7	86.9	4.9	7,759,287	9.2	3,280.4	7.3
CESSNA182	13,646	12,694	1.8	93.0	1.6	29,826,690	6.7	2,349.6	6.5
CESSNA185	1,582	1,452	4.9	91.8	4.5	3,611,951	15.4	2,487.9	14.6
CESSNA188	1,610	1,348	7.4	83.7	6.2	3,426,926	9.3	2,542.1	5.6
CESSNA190	87	52	20.8	60.2	12.5	155,229	24.0	2,963.1	12.0
CESSNA195	498	354	12.9	71.0	9.1	1,314,185	16.4	3,716.7	10.1
CESSNA205	232	222	4.6	95.7	4.4	679,086	9.7	3,060.1	8.5
CESSNA206	2,681	2,337	4.8	87.2	4.2	5,796,985	12.6	2,480.2	11.7
CESSNA207	369	364	4.6	98.8	4.6	1,863,257	20.2	5,112.0	19.6
CESSNA208	77	38	30.8	49.2	15.1	30,246	46.4	741.3	26.9
CESSNA210	5,921	5,453	2.8	92.1	2.6	10,856,405	5.5	1,990.8	4.8

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
CESSNA303	172	169	1.9	98.3	1.9	209,316	7.4	1,237.5	7.1
CESSNA305	277	227	9.2	82.1	7.5	1,406,778	21.9	6,184.5	19.9
CESSNA310	2,972	2,155	8.3	72.5	6.0	7,298,088	9.9	3,385.9	5.3
CESSNA320	313	254	10.4	81.1	8.5	910,558	14.2	3,585.1	9.6
CESSNA335	43	43	0.0	100.0	0.0	68,045	8.1	1,582.4	8.1
CESSNA336	77	54	14.9	70.2	10.5	125,351	16.5	2,319.8	7.1
CESSNA337	1,137	1,053	3.8	92.6	3.5	2,312,380	21.3	2,196.9	20.9
CESSNA340	876	876	0.0	100.0	0.0	1,714,497	11.6	1,957.2	11.6
CESSNA401	217	208	6.2	95.7	5.9	860,959	10.2	4,143.9	8.2
CESSNA402	627	506	12.0	80.7	9.7	2,153,145	16.4	4,256.9	11.1
CESSNA404	130	127	4.6	97.5	4.5	456,336	21.7	3,598.9	21.2
CESSNA411	132	98	23.3	74.0	17.2	355,494	25.1	3,638.8	9.3
CESSNA414	763	763	0.0	100.0	0.0	1,969,560	8.0	2,581.3	8.0
CESSNA421	1,162	1,158	1.4	99.6	1.4	2,858,391	9.8	2,468.9	9.7
CESSNA425	176	176	0.0	100.0	0.0	280,497	14.4	1,593.7	14.4
CESSNA441	222	219	2.9	98.7	2.8	484,568	8.9	2,211.8	8.5
CESSNA500	626	606	4.0	96.8	3.9	1,973,496	15.4	3,257.1	14.9
CESSNA501	48	48	0.0	100.0	0.0	110,390	16.9	2,299.8	16.9
CESSNA650	131	131	0.0	100.0	0.0	171,245	17.1	1,307.2	17.1
CESSNA750	61	15	46.2	24.3	11.2	32,858	49.2	2,214.5	16.9
CESSNAUC77	20	9	37.7	47.1	17.8	20,706	51.6	2,200.0	35.2

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CESSNAUC94	32	12	21.1	37.0	7.8	31,618	23.7	2,673.6	10.8
CHILD S1	58	56	6.1	96.6	5.9	21,782	30.8	389.0	30.2
CHILD S2	163	159	4.4	97.4	4.3	144,180	18.5	907.9	17.9
CNDAIRCL600	113	113	0.0	100.0	0.0	201,019	18.2	1,778.9	18.2
CNTRAR101	33	33	0.0	100.0	0.0	11,517	19.1	349.0	19.1
COMETH185	111	25	32.4	22.1	7.2	38,625	33.9	1,571.5	9.9
CONAERLA4	466	384	12.1	82.3	9.9	402,398	17.3	1,048.9	12.3
CURTISJR	20	3	54.7	13.3	7.3	1,389	59.5	521.0	23.6
CURTISROBIN	35	4	36.3	10.7	3.9	6,750	36.3	1,800.0	0.0
CURTISTRVAIR	163	40	14.6	24.4	3.6	130,668	16.6	3,282.3	7.9
CVAC 240	33	20	33.2	59.1	19.6	543,328	33.2	27,863.0	0.0
CVAC BT13	101	46	19.1	45.5	8.7	146,144	20.9	3,178.2	8.5
CVAC STC580	35	24	22.7	68.7	15.6	408,540	27.0	16,978.3	14.5
DART G	22	5	69.4	22.2	15.4	11,940	72.0	2,442.3	19.2
DHAV DHC1	100	58	24.1	57.7	13.9	354,032	35.2	6,130.8	25.7
DHAV DHC2	243	176	8.2	72.6	5.9	1,490,661	11.7	8,453.1	8.4
DHAV DHC3	37	34	22.6	92.9	21.0	98,502	22.6	2,867.0	0.0
DHAV DHC6	101	101	0.0	100.0	0.0	1,807,534	29.9	17,896.4	29.9
DHAVXDXH82	82	48	15.0	58.4	8.8	143,828	18.8	3,004.7	11.3
DORNERDO228	22	22	0.0	100.0	0.0	68,376	0.0	3,108.0	0.0
DOUG A26	27	10	57.1	35.7	20.4	29,561	57.4	3,065.6	5.6

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DOUG DC3	279	231	17.5	82.7	14.5	4,562,851	49.3	19,781.1	46.1
DOUG DC4	47	23	41.9	48.1	20.2	443,835	41.9	19,613.0	0.0
DOUG DC6	22	22	0.0	100.0	0.0	0	0.0	0.0	0.0
EAGLE DW	71	71	0.0	100.0	0.0	85,841	8.1	1,209.0	8.1
EIRVON20	114	112	3.9	98.4	3.9	54,817	19.2	488.5	18.7
EMAIR MA1	21	21	0.0	100.0	0.0	69,237	21.4	3,297.0	21.4
EMB 110	47	43	7.7	91.6	7.0	526,010	13.1	12,216.4	10.7
ENSTRMF28	421	317	8.0	75.2	6.0	367,989	16.8	1,252.1	17.6
FLEET 16B	23	12	21.6	53.3	11.5	21,560	26.9	1,757.6	16.1
FRCHLD24	283	81	23.0	28.5	6.6	145,123	25.0	1,799.3	9.8
FRCHLDC119	23	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FRCHLDM62	217	118	18.3	54.2	9.9	182,258	22.9	1,550.0	13.8
GALAXYK7	32	32	0.0	100.0	0.0	1,547	22.3	48.3	22.3
GENBALAX6	60	36	40.3	59.3	23.9	38,784	48.1	1,090.8	26.2
GLASER300	23	22	10.6	94.1	9.9	8,610	32.0	397.8	30.2
GLASER400	34	33	6.0	96.2	5.8	12,574	12.9	384.6	11.4
GLASFL201	35	34	6.6	96.3	6.4	32,801	13.0	973.3	11.2
GLASFLH301	107	101	4.5	94.6	4.3	97,560	9.7	963.5	8.6
GROB 103CAT	56	53	8.6	95.0	8.2	50,775	19.7	954.4	17.8
GROB 109	67	60	5.2	90.0	4.6	25,443	9.4	421.8	7.9
GROB ASTIR	60	55	9.9	92.1	9.1	21,911	18.0	396.5	15.0

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
GRTLS2T1	167	129	15.9	77.1	12.3	121,396	33.8	942.3	29.8
GRMANSA16	25	15	56.5	60.0	33.9	22,950	56.5	1,530.0	0.0
GRMAVAA1	552	500	6.8	90.6	6.2	836,457	10.4	1,672.6	7.8
GRMAVAA5	1,026	971	4.2	94.7	4.0	1,818,524	8.9	1,872.5	7.8
GRMAVG1159	34	34	0.0	100.0	0.0	152,388	8.2	4,482.0	8.2
GRMAVG164	1,172	1,125	4.1	96.0	3.9	5,441,278	13.9	4,838.3	13.3
GRMAVG21	51	26	49.0	51.4	25.2	261,608	61.8	9,989.2	37.7
GRMAVTBM	35	13	37.5	37.5	14.1	35,690	39.5	2,719.2	12.3
GULSTM112	658	544	9.4	82.7	7.8	801,647	11.4	1,472.6	6.5
GULSTM500	288	277	4.9	96.1	4.7	1,353,806	12.2	4,891.3	11.2
GULSTM520	45	13	71.3	28.6	20.4	62,623	71.8	4,870.7	8.4
GULSTM560	110	93	13.9	84.6	11.7	612,624	25.6	6,581.9	21.5
GULSTM680	286	153	15.6	53.4	8.3	629,233	19.2	4,121.6	11.1
GULSTM680TP	95	84	14.6	88.6	13.0	311,380	14.2	3,700.6	19.3
GULSTM690TC	23	23	0.0	100.0	0.0	38,632	11.2	1,679.6	12.2
GULSTM690TP	381	364	5.2	95.5	5.0	1,244,067	12.0	3,419.8	10.8
GULSTMAA1	591	433	14.9	73.3	10.9	754,329	17.9	7,740.5	9.9
GULSTMAA5	630	595	3.1	94.5	3.0	1,084,164	6.5	1,821.7	5.7
GULSTMG1159	202	185	9.4	91.5	8.6	685,016	31.3	3,704.2	29.8
GULSTMG159	101	63	22.7	62.5	14.2	790,612	24.5	12,524.5	9.3
GULSTMG44	87	60	33.9	68.8	23.3	383,425	44.6	6,410.5	29.0

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GULSTM73	28	17	25.3	59.4	15.0	231,552	26.9	13,927.9	9.1
GULSTMGA7	50	50	0.0	100.0	0.0	93,089	7.0	1,861.8	7.0
H23/HTE	31	13	44.4	42.9	19.0	114,510	45.7	8,619.0	10.5
H34/55	27	1	254.2	5.3	13.4	6,231	254.2	4,385.0	0.0
HELIO H250	11	11	0.0	100.0	0.0	18,533	9.9	1,684.9	9.9
HELIO H295	93	72	18.9	77.8	14.7	520,234	39.3	7,186.2	34.5
HELIO H391	20	11	31.1	57.1	17.7	45,049	37.3	3,941.8	20.6
HILLERFH1100	58	18	34.7	30.4	10.6	226,175	58.8	12,812.9	47.5
HILLERUH12	540	170	40.8	31.6	12.9	749,883	43.4	4,399.7	14.8
HSPAVNHA200	23	23	0.0	100.0	0.0	16,100	0.0	700.0	0.0
HUGHES269	652	443	9.8	68.9	6.7	1,901,291	16.6	4,235.1	13.4
HUGHES369	578	432	14.4	74.7	10.7	1,663,891	30.6	3,855.9	27.0
HWKSLYDH104	31	0	0.0	0.0	0.0	0	0.0	0.0	0.0
HWKSLYDH125	181	181	0.0	100.0	0.0	898,071	16.5	4,961.7	16.5
HYNES B2	124	64	13.5	51.4	6.9	83,555	16.7	1,309.9	9.9
INTRCP200	30	24	18.0	80.0	14.4	42,522	23.6	1,771.7	15.3
ISRAELI121	96	86	8.2	89.5	7.3	461,607	9.2	5,373.0	4.3
ISRAELI123	22	22	0.0	100.0	0.0	53,262	10.2	2,421.0	10.2
ISRAELI124	204	204	0.0	100.0	0.0	595,954	12.8	2,921.3	12.8
JBMSTFDGA15	85	17	64.6	19.7	12.7	15,812	71.3	944.4	30.2
LAIFN10	35	3	93.4	8.3	7.8	190	93.4	65.0	0.0

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
LEAR 23	50	48	8.7	95.0	8.3	254,278	12.9	5,353.2	9.5
LEAR 24	170	164	5.6	96.2	5.4	1,061,756	10.8	6,491.2	9.2
LEAR 25	235	230	4.5	97.7	4.4	1,132,338	13.7	4,930.9	13.0
LEAR 35	417	417	0.0	100.0	0.0	1,612,768	9.4	3,867.5	9.4
LEAR 55	103	103	0.0	100.0	0.0	203,656	15.2	1,977.2	15.2
LET L13	165	149	11.2	90.4	10.1	260,238	22.6	1,745.6	19.6
LKHEED12A	19	7	27.9	37.9	10.6	89,369	32.2	12,417.6	15.9
LKHEED1329	84	81	4.8	96.8	4.6	400,037	16.0	4,918.5	15.2
LKHEED18	61	33	36.1	53.8	19.4	354,739	36.1	10,800.0	0.0
LKHEEDP2V	22	11	67.4	50.0	33.7	0	0.0	0.0	0.0
LKHEEDPV1	36	2	71.3	5.4	3.8	4,853	71.3	2,500.0	0.0
LKHEEDT33	48	7	46.9	13.6	6.4	16,230	52.5	2,493.2	23.4
LUSCOM8	2,076	1,119	12.7	53.9	6.8	2,302,306	15.2	2,057.4	8.3
MAULE M4	268	160	25.8	59.6	15.4	225,584	27.2	1,412.2	8.7
MAULE M5	438	410	6.6	93.6	6.1	449,196	13.2	1,095.4	11.5
MAULE M6	71	64	6.6	89.7	5.9	47,079	11.7	739.5	9.6
MCLISHFUNKB	136	78	12.9	57.0	7.3	137,201	15.3	1,768.4	8.3
MEYERSOTW	45	23	21.6	51.3	11.1	50,503	27.6	2,188.2	17.0
MNCUP90	66	18	35.0	27.1	9.5	35,532	43.0	1,987.8	24.9
MNMITM18	130	56	20.1	43.0	8.6	69,645	22.7	1,246.2	10.6
MOONEYM20	6,236	5,661	3.0	90.8	2.7	11,629,992	6.5	2,054.4	5.7

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
MCHTIS205	47	38	16.6	79.9	13.3	43,221	21.6	1,150.3	13.9
MTSBSIMU2	276	253	8.7	91.7	8.0	777,353	21.4	3,072.1	19.5
MTSBSIMU300	69	69	0.0	100.0	0.0	112,481	9.9	1,630.2	9.9
MULTECD16	41	15	33.7	37.5	12.6	30,983	34.8	2,015.1	8.5
NAMER B25	52	40	22.0	76.0	16.8	210,251	30.4	5,320.1	20.9
NAMER F51	147	68	21.6	46.2	10.0	104,734	25.3	1,541.5	13.2
NAMER NA260	157	75	34.0	47.8	16.2	249,434	38.3	3,323.5	17.6
NAMER T6	531	452	7.2	85.2	6.1	2,430,072	12.1	5,372.2	9.7
NATBAL752	34	32	11.9	92.9	11.1	7,246	17.1	229.5	12.3
NAVAL N3N	119	54	15.3	45.4	6.9	198,055	19.5	3,664.0	12.1
NAVIONNAVION	555	403	10.0	72.7	7.3	1,332,316	12.2	3,304.2	7.0
NORD 3202	24	6	128.1	25.0	32.0	7,200	128.1	1,200.0	0.0
NORD SV4	44	28	24.9	62.5	15.6	48,718	37.9	1,771.6	28.5
NORWST65	54	31	11.4	57.7	6.5	81,832	14.5	2,628.0	9.0
ORLHELH19	73	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ORLHELH58	35	0	0.0	0.0	0.0	0	0.0	0.0	0.0
PARTENP68	38	38	0.0	100.0	0.0	56,526	26.4	1,487.5	26.4
PICARDAX6	149	27	32.2	18.2	5.9	8,444	41.8	310.6	26.7
PILATSB4	26	20	14.3	77.8	11.1	17,148	17.3	848.0	9.8
PIPER 600	364	364	0.0	100.0	0.0	369,861	15.0	1,016.1	15.0
PIPER E2	17	9	22.5	50.0	11.2	8,927	37.0	1,050.2	29.4

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
PIPER J2	57	23	19.0	40.8	7.8	43,432	23.8	1,866.6	14.3
PIPER J3	4,068	2,280	7.4	56.0	4.1	7,815,731	10.5	3,428.6	7.5
PIPER J4	239	97	25.8	40.5	10.5	156,184	30.6	1,612.2	16.4
PIPER J5	336	139	11.4	41.4	4.7	411,901	14.0	2,958.6	8.1
PIPER PA12	1,298	849	9.5	65.4	6.2	2,246,221	12.4	2,646.1	8.0
PIPER PA14	94	75	14.3	80.2	11.5	247,503	22.3	3,284.9	17.1
PIPER PA15	179	121	17.6	67.7	11.9	229,964	21.4	1,898.5	12.1
PIPER PA16	355	224	19.0	63.0	12.0	784,695	37.1	3,509.0	31.8
PIPER PA17	105	64	15.0	61.3	9.2	153,611	16.9	2,387.8	7.9
PIPER PA18	3,492	2,144	10.5	61.4	6.4	6,022,998	16.9	2,809.8	13.3
PIPER PA20	412	257	10.7	62.4	6.7	591,713	13.3	2,300.4	7.9
PIPER PA22	4,695	2,927	6.9	62.3	4.3	7,275,533	8.4	2,486.4	5.1
PIPER PA23	3,217	2,574	5.8	80.0	4.7	9,600,537	8.4	3,730.4	6.0
PIPER PA24	3,095	2,761	4.7	89.2	4.2	9,567,791	7.4	3,465.7	5.7
PIPER PA25	1,133	930	8.8	82.1	7.3	3,390,872	12.4	3,646.7	8.7
PIPER PA28	21,721	20,343	1.2	93.7	1.1	53,631,432	3.5	2,631.1	3.3
PIPER PA30	1,200	1,092	5.4	91.0	4.9	3,570,929	8.9	3,269.0	7.1
PIPER PA31	1,809	1,705	4.6	94.3	4.3	6,163,714	9.2	3,610.2	7.7
PIPER PA31T	537	440	10.5	81.9	8.6	1,042,729	13.6	2,370.9	8.7
PIPER PA32	4,202	3,861	3.3	91.9	3.1	8,266,964	6.7	2,141.4	5.8
PIPER PA34	1,875	1,787	5.2	95.3	5.0	2,901,129	14.3	1,623.8	13.4

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
PIPER PA36	346	290	14.6	83.8	12.3	618,702	17.2	2,132.7	9.1
PIPER PA38	1,270	1,164	4.9	91.6	4.5	3,458,566	17.2	2,971.4	16.4
PIPER PA42	102	102	0.0	100.0	0.0	159,704	8.4	1,565.7	8.4
PIPER PA44	305	294	4.8	96.5	4.7	759,080	13.7	2,579.7	12.8
PIPER PA46	296	296	0.0	100.0	0.0	280,429	13.9	947.4	13.9
PROPTJ200	65	54	22.6	82.8	18.7	114,268	24.9	2,124.2	10.3
RAVEN RX6	202	70	39.6	34.8	13.8	11,827	49.3	168.1	29.3
RAVEN S50	85	15	49.8	18.0	9.0	5,008	51.8	326.7	14.1
RAVEN S55	803	467	25.2	58.2	14.6	93,817	33.8	200.7	22.6
RAVEN S57	45	45	0.0	100.0	0.0	3,465	11.8	77.0	11.8
RAVEN S60	229	207	16.0	90.4	14.5	47,723	36.7	230.5	33.0
RAVEN S66	52	46	13.1	88.9	11.7	69,091	52.9	1,494.7	51.3
RKWE1500	32	26	13.7	82.4	11.3	98,371	26.2	3,732.8	22.4
RKWE1700	21	21	0.0	100.0	0.0	27,295	10.8	1,299.7	10.8
RKWE1NA265	311	274	8.7	88.2	7.7	1,479,751	16.1	5,394.3	13.5
ROBSINR22	212	194	4.0	91.5	3.7	321,681	10.0	1,658.5	9.2
ROLSCHLS	126	119	5.1	94.7	4.8	83,105	15.7	696.6	14.9
RYAN ST3	163	82	18.7	50.4	9.4	185,122	21.4	2,255.6	10.5
RYAN STA	30	9	74.3	28.6	21.2	18,523	79.3	2,161.0	27.5
SCHEMPDISCUS	42	42	0.0	100.0	0.0	12,823	9.2	305.3	9.2
SCHLERASK21	33	33	0.0	100.0	0.0	25,001	18.9	757.6	18.9

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
SCHLERASW15	35	30	9.2	84.6	7.8	27,439	14.2	926.5	10.9
SCHLERASW19	58	57	3.6	97.7	3.6	34,760	13.0	613.2	12.5
SCHLERASW20	94	93	2.8	98.5	2.7	48,085	13.6	519.6	13.3
SCHLERK8	23	18	12.5	80.0	10.0	16,593	21.8	901.8	17.8
SCHLERKA6	75	45	15.0	60.6	9.1	57,847	20.8	1,273.2	14.4
SCWZERGL64	201	156	8.7	77.7	6.8	879,796	10.5	5,633.7	5.8
SCWZERSG1	754	598	9.3	79.3	7.4	630,489	17.5	1,054.5	14.8
SCWZERSG2	562	313	12.9	55.8	7.2	889,310	21.4	2,837.8	17.1
SEMCO MODELT	27	18	38.5	66.7	25.7	2,475	40.0	137.5	10.9
SKRSKYS55	29	14	44.4	46.7	20.7	111,360	48.5	8,228.6	19.5
SKRSKYS58	65	17	72.8	26.2	19.1	91,297	73.0	5,362.9	6.1
SKRSKYS58T	35	19	41.0	55.0	22.6	117,386	43.0	6,098.0	12.9
SKRSKYS61	29	11	27.5	38.1	10.5	101,425	34.5	9,172.4	20.8
SKRSKYS76	148	138	6.5	93.5	6.1	303,492	20.2	2,192.8	19.1
SLINDS100	294	227	11.6	77.1	9.0	361,477	15.2	1,593.7	9.8
SMITH 600	360	336	5.2	93.3	4.9	720,289	9.4	2,144.5	7.8
SNIAS 350	229	193	11.2	84.3	9.4	530,086	23.3	2,747.2	20.5
SNIAS SA341	25	13	38.7	53.8	20.9	35,462	39.4	2,634.3	7.4
SOCATAMS894	36	31	6.7	86.2	5.8	28,018	9.3	902.8	6.3
SOCATARALLYE	16	16	0.0	100.0	0.0	9,672	12.3	604.5	12.3
SOCATATB10	40	40	0.0	100.0	0.0	6,513	25.2	162.8	25.2

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
SOCATATB20	100	100	0.0	100.0	0.0	42,562	11.7	425.6	11.7
SPRTHCIRRU	97	87	4.5	90.0	4.1	101,773	10.4	1,165.6	9.4
SPRTHNIMBUS	51	45	11.9	88.0	10.5	39,233	20.5	874.2	16.7
SPRTHVENTUS	44	44	0.0	100.0	0.0	23,147	7.1	526.1	7.1
STBROSSD3	16	0	0.0	0.0	0.0	0	0.0	0.0	0.0
STN10N10	151	29	30.2	19.2	5.8	67,809	34.2	2,337.7	16.0
STN10NJR	20	12	27.8	58.3	16.2	30,219	28.4	2,590.2	5.6
STN10NLS	116	39	21.3	33.4	7.1	70,294	24.5	1,812.8	12.2
STN10NSR9	26	7	31.1	28.6	8.9	19,280	32.0	2,595.3	7.4
STN10NV77	103	42	25.4	40.4	10.3	49,173	30.4	1,182.7	16.6
STOLAMRC3	215	99	16.7	46.2	7.7	127,899	22.2	1,288.8	14.5
SUPAC LA	92	17	28.0	18.7	5.2	24,203	31.7	1,405.8	14.7
SUPAC V	29	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SWRNGNSA226	164	139	10.1	84.5	8.6	1,633,843	10.3	12,247.4	3.4
SWRNGNSA227	77	77	0.0	100.0	0.0	461,205	26.3	5,989.7	26.3
SWRNGNSA26	86	50	37.1	58.3	21.6	316,541	37.6	6,309.8	6.3
TCRAFTKD	285	88	32.3	30.8	10.0	162,813	36.4	1,852.0	16.7
TCRAFTA	33	7	45.0	22.7	10.2	17,250	49.6	2,300.0	20.9
TCRAFTBC	1,741	823	14.7	47.3	7.0	2,223,686	20.3	2,701.6	14.0
TCRAFTBF	36	20	21.8	56.5	12.3	56,010	27.1	2,752.6	16.1
TCRAFTBL	216	95	16.9	44.1	7.5	244,772	19.1	2,568.7	8.8

6.2 1988 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

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MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
TEMCO 11A	29	10	29.7	35.9	10.7	19,850	31.2	1,907.6	9.4
TH55	30	16	12.6	52.0	6.5	0	0.0	0.0	0.0
THUNDRA7	84	72	12.0	85.3	10.3	29,180	56.8	407.3	55.5
TMPSONNAVION	608	406	7.1	66.7	4.7	1,144,680	9.2	2,820.8	5.8
TRYTEK65	324	178	12.5	54.8	6.9	442,906	17.1	2,492.3	11.7
TRYTEKK	31	9	36.6	29.2	10.7	8,854	47.5	979.2	30.2
UNIVACGC1	663	355	11.4	53.5	6.1	668,779	13.8	1,886.5	7.7
UNIVAR108	1,940	937	15.7	48.3	7.6	2,172,854	17.3	2,318.2	7.2
UNIVAR415	2,222	1,367	11.2	61.5	6.9	2,560,550	13.3	1,872.6	7.2
VALENT17	23	23	0.0	100.0	0.0	5,429	16.3	236.1	16.3
VARGA 2150	135	119	11.4	88.3	10.0	167,269	23.4	1,403.0	20.5
WACO ASO	27	9	15.2	33.3	5.1	35,723	19.9	3,969.2	12.8
WACO GXE	36	7	24.3	20.3	4.9	15,809	24.4	2,160.0	2.3
WACO R	28	9	19.8	33.3	6.6	19,222	20.5	2,059.5	5.6
WACO UPF7	161	80	12.6	49.7	6.3	251,612	14.0	3,146.4	6.0
WACO YK	50	14	25.9	27.5	7.1	48,180	28.4	3,504.0	11.6
WSK M18	34	33	12.8	95.7	12.3	32,484	82.0	998.4	81.0
WTHRLY201	61	45	16.4	73.0	12.0	106,229	18.3	2,386.4	8.1
TOTAL	259,434	210,266	0.5	81.0	0.4	563,080,640	1.2	2,606.4	1.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

6.3 1988 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALLSN 250C	1,404	5.2	88.3	726	10.7
ALLSN 501D	78	12.2	77.4	141	21.1
AMTRMCUCCULH	140	20.4	86.9	13	35.1
ARSRCHTFE731	18,081	2.6	68.1	265	4.4
ARSRCHTPE331	84	33.4	20.4	71	22.2
CFMINTCFM56	117	13.0	59.6	179	9.2
CONT 6285	47	0.0	100.0	253	24.5
CONT A40	28	78.1	16.6	23	19.4
CONT A50	4	32.9	45.9	12	42.2
CONT A65	6,193	4.9	58.2	53	6.8
CONT A75	882	14.1	48.2	54	18.6
CONT A80	5	40.1	24.9	21	38.9
CONT C125	205	18.4	44.5	61	14.3
CONT C145	1,620	7.5	73.7	73	9.5
CONT C85	3,812	6.0	63.0	58	12.2
CONT C90	1,646	9.5	62.1	55	13.9
CONT E-35	1,105	9.9	65.2	82	14.0
CONT E225	1,395	8.0	80.1	73	11.9

6.3 1988 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CONT O200	14,050	2.7	84.2	126	7.3
CONT O300	8,462	2.3	92.7	85	9.3
CONT O346	470	10.2	87.6	51	26.1
CONT O360	2,913	3.1	89.9	207	29.8
CONT O470	15,730	2.1	88.9	121	6.4
CONT O520	23,618	1.1	93.4	194	4.1
CONT R670	77	67.7	30.8	38	28.0
DHAVXGIPSY	43	37.4	38.5	40	12.2
FCD 6440	226	15.1	56.5	44	17.5
FRNKLN4AC150	1	577.2	1.3	24	0.0
FRNKLN4AC176	119	30.5	55.9	44	7.2
FRNKLN4AC199	27	105.7	12.8	33	27.5
FRNKLN6A4150	426	21.0	43.6	51	21.6
FRNKLN6A4165	554	22.8	48.7	69	16.7
FRNKLN6A4200	7	0.0	100.0	54	63.3
FRNKLN6A8215	72	19.8	41.3	44	26.8
FRNKLN6AV335	60	24.2	65.6	87	9.2
FRNKLN6AV350	88	36.0	40.6	58	11.7

6.3 1988 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE
BY ENGINE SDR MANUFACTURER/MODEL GROUP

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ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FRNKLN6V4	129	47.6	59.1	29	2.8
FRNKLN6V6245	14	0.0	100.0	456	8.7
FRNKLN6VS335	425	0.0	100.0	416	7.5
GE CF6	843	2.3	92.5	614	8.8
GE CF700	176	0.0	100.0	279	9.8
GE CJ610	514	4.2	91.6	455	12.4
GE CJ805	18	13.2	51.3	852	16.4
GE CJ805F	17	15.2	46.9	33	11.7
GE CT58	7	25.8	40.0	20	15.7
GLADENK5	94	17.3	53.7	36	11.4
GLADENR5	240	12.3	74.4	89	14.9
JACOBPR755	119	24.2	43.9	84	18.0
JACOBSR755	8	100.6	20.2	38	5.5
LYC 0540	89	0.0	100.0	407	6.8
LYC LTS101	97	15.9	65.8	392	11.2
LYC O145	382	21.0	47.2	44	10.1
LYC O235	9,706	3.0	81.2	251	8.6
LYC O290	1,956	11.4	55.6	72	22.1

6.3 1988 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE
BY ENGINE SDR MANUFACTURER/MODEL GROUP

PAGE 4 OF 5

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
LYC O320	38,715	1.3	88.3	151	5.1
LYC O340	46	22.6	60.7	33	14.7
LYC O360	22,974	1.3	92.5	123	4.8
LYC O435	82	31.7	59.2	64	30.5
LYC O480	701	6.2	81.7	133	13.2
LYC O540	15,533	1.7	90.1	163	5.6
LYC O541	733	5.5	92.8	122	10.7
LYC O720	69	25.2	79.3	63	76.7
LYC R680	115	12.4	87.9	34	26.0
MNASCO4	36	25.3	44.9	71	30.4
ONAN B48	282	9.7	82.1	486	11.0
PKARDV1650	536	0.0	100.0	364	12.3
PWA JT12	6	0.0	100.0	6	0.0
PWA JT15	22	0.0	100.0	459	11.3
PWA JT3C	2,982	1.2	98.2	376	4.8
PWA JT3D	16	28.0	51.9	203	32.8
PWA JT4	1,633	5.5	83.3	325	9.3
PWA JT8	179	7.3	67.6	251	16.2

6.3 1988 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE
BY ENGINE SDR MANUFACTURER/MODEL GROUP

PAGE 5 OF 5

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
PWA JT9	9	33.6	23.0	3	0.0
PWA PT6	46	24.9	26.4	98	26.3
PWA PT6T	1,574	8.1	57.5	313	8.9
PWA R1340	62	0.0	100.0	61	92.4
PWA R1830	103	29.7	41.1	385	14.3
PWA R2800	213	0.0	100.0	481	11.7
PWA R985	76	0.0	100.0	350	10.1
RROYCEDART	49	45.1	45.6	251	35.7
RROYCEGIPSY	78	17.4	93.2	849	19.8
RROYCETYN	5	0.0	100.0	22	12.2
RROYCEVIPER	17	26.6	24.6	29	38.1
ALL ENGINES	241,407	0.7	83.3	168	1.48

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ENGINE MANUFACTURER/MODEL GROUPS FOR WHICH SEPARATE ESTIMATES ARE NOT AVAILABLE ARE NOT LISTED IN THE TABLE, BUT ARE INCLUDED IN THE "ALL ENGINES" ESTIMATES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX C FOR SDR ENGINE GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

CHAPTER VII

AVIONICS

A major purpose of the survey is to determine what avionics equipment the general aviation fleet has on board its aircraft. This chapter presents the survey's findings with 17 tables of statistics and one figure. Figure 7.1, Avionics Equipment in the 1988 General Aviation Aircraft Fleet, graphically depicts the percentages of the general aviation fleet using the types of avionics equipment represented in Tables 7.1-7.16.

The avionics are divided into four groups of equipment: 1) VHF communications and transponder equipment; 2) precision approach equipment; 3) navigation equipment; and 4) guidance and control equipment. Statistics on each of these groups of avionics equipment are given by four categories:

- 1) aircraft type, Tables 7.1, 7.5, 7.9, and 7.13;
- 2) primary use, Tables 7.2, 7.6, 7.10, and 7.14;
- 3) region of based aircraft, Tables 7.3, 7.7, 7.11, and 7.15; and
- 4) state of based aircraft, Tables 7.4, 7.8, 7.12, and 7.16.

Tables 7.1-7.4 contain survey results for the first group of equipment. This year's survey was modified in format and content to capture additional avionics data. As a consequence, responses to the transponder questions appeared to indicate some small level of confusion, and the resulting 17 percent estimate for Mode S capability, along with other significant deviations from previous trends such as the low estimate of overall transponder equipment, should be interpreted in this light. Data was not collected this year for the 4096 transponder, but the highly predictable trend over the past several years would place this percentage at around 68 percent.

The second group of avionics equipment, precision approach equipment, is comprised of Tables 7.5-7.8. Precision approach equipment consists of localizers, marker beacons, glide slopes or a microwave landing system (MLS).

The third group of avionics equipment, consisting of Tables 7.9-7.12, is navigation equipment. This group can be divided into three subcategories, basic navigation equipment, long range navigation equipment, and other navigation equipment. Basic navigation equipment consists of: Very high frequency Omnidirectional Radio ranges (VOR)

with 100 channels, 200 channels, or two or more VOR; Automatic Direction Finder (ADF); Distance Measuring Equipment (DME); or Area Navigation (RNAV).

Long range navigation consists of: the Loran-C, which can be flown by Visual Flight Rules (VFR), Enroute Instrument Flight Rules (ENR IFR), or Terminal Instrument Flight Rules (TRM IFR); the Omega; or some other type of long range navigation equipment. The other navigation equipment category consists of radar altimeter, weather radar, and thunderstorm detection equipment.

Tables 7.13-7.16 comprise the last group of avionics equipment, Guidance and Control Equipment. This equipment includes flight directors, Horizontal Situation Indicators (HSI), Electronic Flight Information Systems (EFIS), flight management computers, autopilots (1, 2, and 3 axis), automatic land, flight data recorder, and Emergency Locator Transmitter (ELT).

The last table in this chapter, Table 7.17, shows the estimated number of aircraft and total hours flown IFR with and without Mode S equipment. More than 85,000 aircraft were flown IFR, flying more than 7.7 million hours.

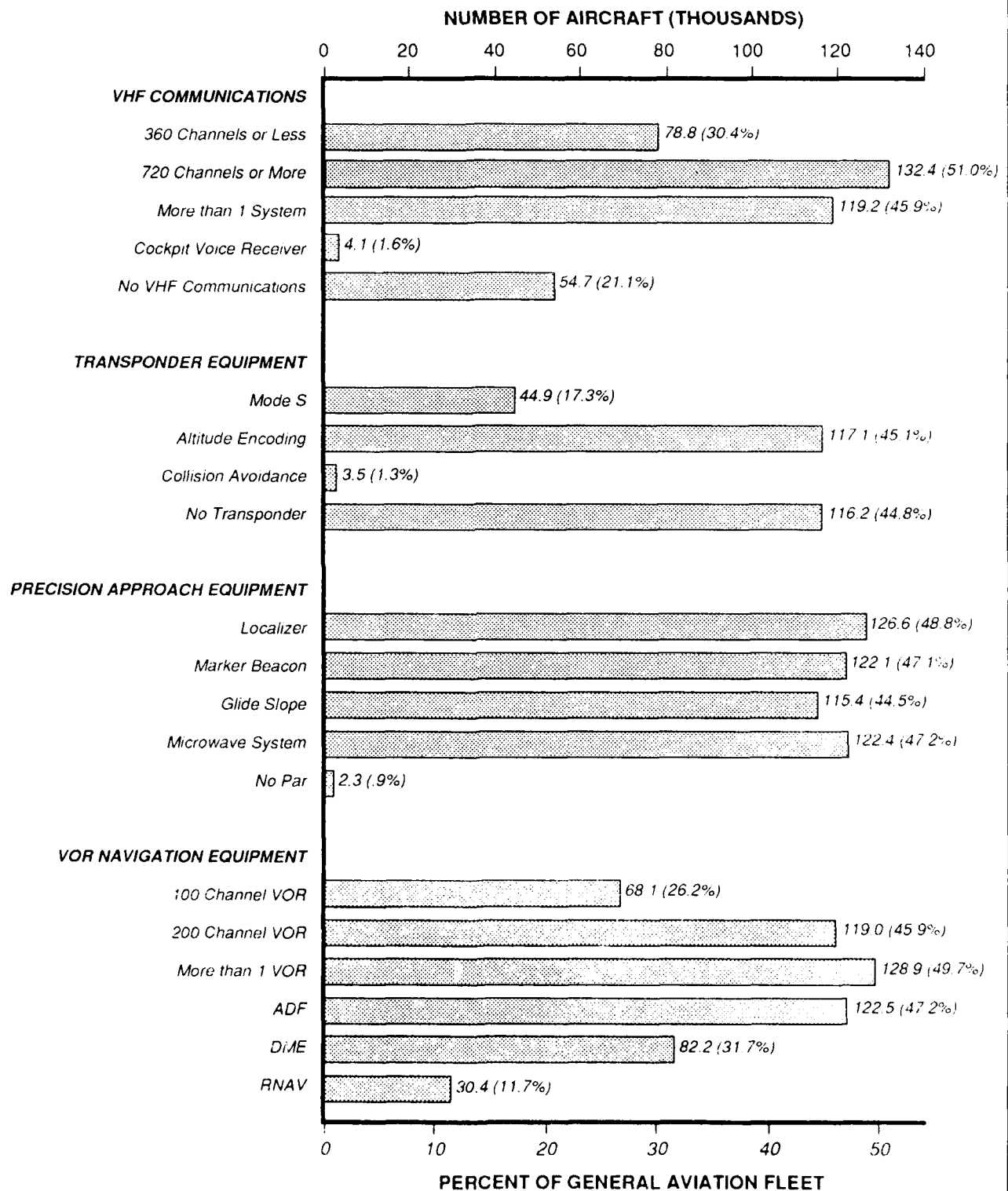
Some observations to be made from these tables are:

- o The avionics equipment capability of the general aviation fleet continues to become increasingly more sophisticated. The percent of the general aviation fleet with 720 channel communication equipment is 1.7 times the percent of the fleet with 360 channel equipment capability, and the percentage of the general aviation aircraft with altitude encoding equipment also increased, rising from 40.9 percent in 1987 to more than 45 percent in 1988.
- o The category, collision avoidance equipment, which was included in this year's survey for the first time, showed that 1.3 percent of the fleet is estimated to have this capability.
- o More than half of the general aviation fleet, 52.8 percent, have some kind of precision approach equipment, with figures evenly divided among the localizer, marker beacon, and glide slope categories.
- o The rotorcraft is equipped with the least amount of precision approach equipment of all the aircraft types, and only 19.4 percent of the estimated general aviation population has any type of precision approach equipment.

The turboprop and turbojet aircraft categories, though, have high percentages of precision approach equipment, 93.9 and 90.6 percent of the estimated population, respectively. This is to be expected because of their heavy commercial use.

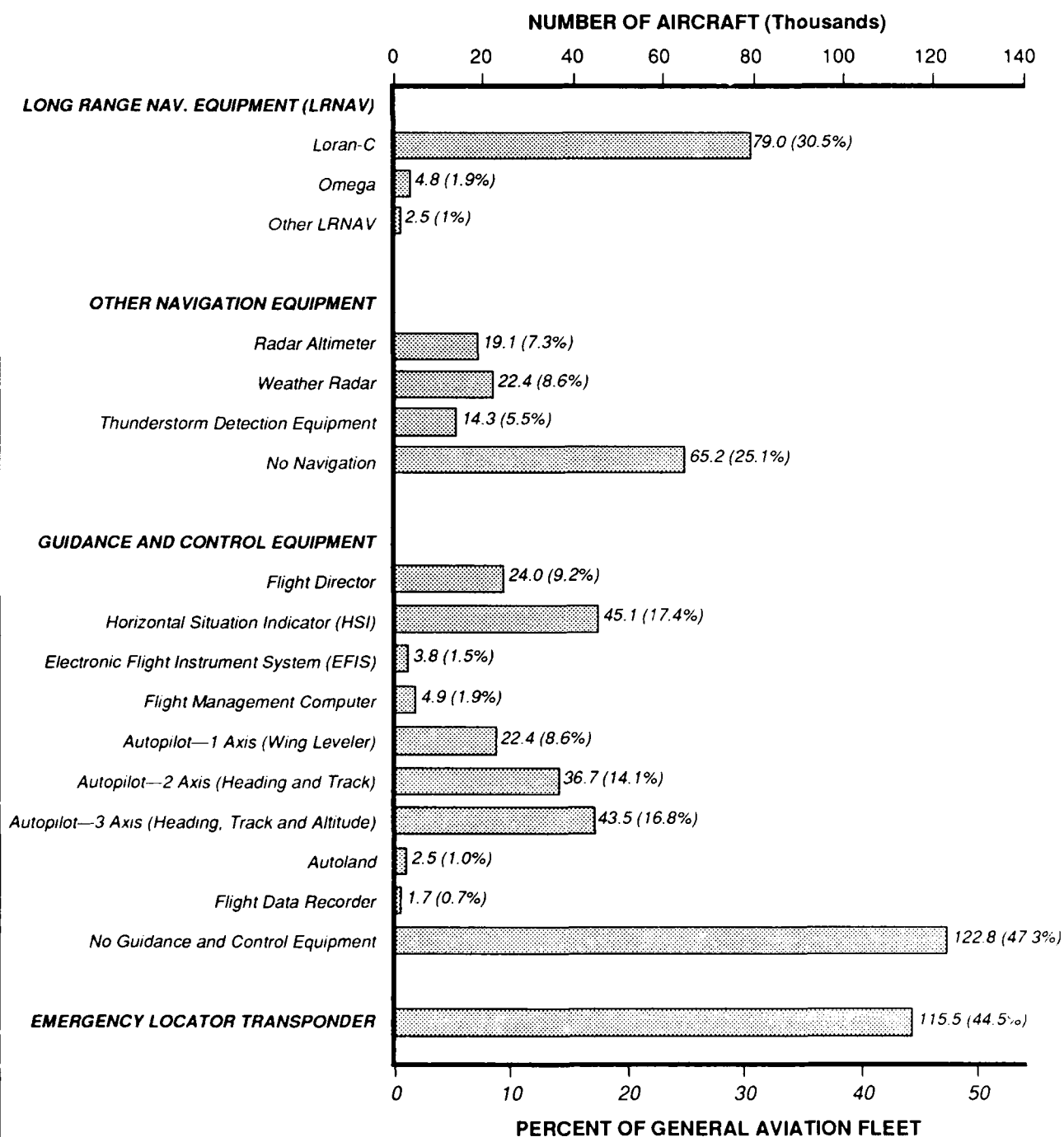
- o Aircraft used mainly for business or commuter purposes, such as the executive, business, commuter air carrier and air taxi categories, have the highest estimates of the population with precision approach equipment. Aircraft in other use categories, such as personal, instructional, aerial application, and aerial observation, have less precision approach equipment.
- o All of the regions, with the exception of the Alaskan region, have relatively similar estimates of population size percentages with precision approach equipment, percentages ranging from 51.4 to 62.1 percent. The Alaskan region has an estimated 33.6 percent of the population with precision approach equipment.
- o The most common precision approach equipment in the general aviation fleet is the localizer.
- o Three-fourths of the general aviation fleet has some type of navigation equipment.
- o The most popular kinds of navigation equipment are the VOR and the ADF.
- o The percent of the fleet with long range navigation equipment increased in all categories from 1987 to 1988. The Loran-C increased from 21.5 to 30.5 percent this year, a jump of more than 70 percent, while the Omega and the other LRNAV categories modestly rose from 1.0 to 1.9 percent and from 0.9 to 1.0 percent, respectively. The Other Navigation Equipment subcategory did not change significantly.
- o This year, more than 52 percent of the general aviation aircraft is estimated to have one or more types of guidance and control equipment. This represents an increase from 39 percent in 1987. This year's increase, however, can be attributed to the inclusion of two additional categories, the flight data recorder and the ELT. The estimated population with ELT capabilities, 44.5 percent, is felt to be underestimated because of the previously mentioned problems with the format of the survey instrument.

Figure 7.1
AVIONICS EQUIPMENT IN THE
1988 GENERAL AVIATION AIRCRAFT FLEET



SOURCE: Tables 7.1, 7.5, 7.9, and 7.13

Figure 7.1 (continued)
AVIONICS EQUIPMENT IN THE
1988 GENERAL AVIATION AIRCRAFT FLEET



7.1 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS									
ESTIMATED POPULATION	28,241	25,066	10,010	961	32,934	9,258	11,480	669	65,317
% STD. ERROR	3.0	3.4	5.9	22.2	2.4	6.4	5.6	26.7	1.1
% WITH CAPABILITY	33.4	29.7	11.8	1.1	39.0	11.0	13.6	0.8	77.3
1 ENG: 4+ SEATS									
ESTIMATED POPULATION	40,343	72,980	77,583	1,624	9,410	27,403	71,505	2,017	30,556
% STD. ERROR	2.7	1.5	1.3	17.6	6.4	3.7	1.5	15.5	3.1
% WITH CAPABILITY	34.1	61.6	65.5	1.4	7.9	23.1	60.4	1.7	25.8
1 ENGINE: TOTAL									
ESTIMATED POPULATION	68,583	98,047	87,593	2,586	42,344	36,660	82,985	2,686	95,872
% STD. ERROR	2.0	1.4	1.4	13.8	2.3	3.2	1.5	13.4	1.3
% WITH CAPABILITY	33.8	48.3	43.2	1.3	20.9	18.1	40.9	1.3	47.2
2 ENG: 1-6 SEATS									
ESTIMATED POPULATION	3,569	12,977	14,118	297	1,306	3,132	14,651	302	2,126
% STD. ERROR	9.1	2.7	2.2	36.9	15.9	10.0	1.9	35.8	11.8
% WITH CAPABILITY	20.4	74.1	80.6	1.7	7.5	17.9	83.7	1.7	12.1
2 ENG: 7+ SEATS									
ESTIMATED POPULATION	1,832	5,700	6,076	98	1,167	1,659	7,031	59	1,628
% STD. ERROR	14.6	5.6	4.9	37.0	19.3	16.1	3.0	46.2	12.6
% WITH CAPABILITY	20.8	64.7	69.0	1.1	13.3	18.8	79.8	0.7	18.5
2 ENGINE: TOTAL									
ESTIMATED POPULATION	5,401	18,677	20,194	395	2,473	4,791	21,682	360	3,754
% STD. ERROR	7.8	2.5	2.1	29.2	12.4	8.6	1.6	30.9	8.6
% WITH CAPABILITY	20.5	71.0	76.7	1.5	9.4	18.2	82.4	1.4	14.3
PISTON: OTHER									
ESTIMATED POPULATION	20	70	22	0	91	57	47	33	110
% STD. ERROR	72.3	29.8	59.7	0.0	22.3	34.5	41.2	52.8	18.4
% WITH CAPABILITY	11.1	38.8	12.3	0.0	50.1	31.7	26.0	18.3	60.6
PISTON: TOTAL									
ESTIMATED POPULATION	74,005	116,794	107,809	2,981	44,908	41,509	104,714	3,079	99,736
% STD. ERROR	2.0	1.3	1.2	12.6	2.3	3.0	1.2	12.2	1.3
% WITH CAPABILITY	32.3	50.9	47.0	1.3	19.6	18.1	45.6	1.3	43.5

7.1 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS									
ESTIMATED POPULATION	486	3,825	3,791	116	275	791	4,209	70	243
% STD. ERROR	25.0	3.4	3.4	43.5	28.9	17.6	2.2	62.9	30.7
% WITH CAPABILITY	10.7	84.2	83.5	2.6	6.0	17.4	92.6	1.5	5.3
2 ENG: 13+ SEATS									
ESTIMATED POPULATION	105	807	815	38	94	66	895	53	97
% STD. ERROR	32.8	5.9	5.5	47.2	38.9	37.0	4.4	55.0	38.6
% WITH CAPABILITY	10.4	79.9	80.7	3.8	9.3	6.5	88.6	5.2	9.6
2 ENGINE: TOTAL									
ESTIMATED POPULATION	591	4,631	4,607	154	369	858	5,104	123	339
% STD. ERROR	21.4	3.0	2.9	34.7	23.7	16.5	1.9	42.9	24.6
% WITH CAPABILITY	10.7	83.4	83.0	2.8	6.6	15.4	91.9	2.2	6.1
TURBOPROP: OTHER									
ESTIMATED POPULATION	30	122	70	0	78	30	111	0	115
% STD. ERROR	44.0	16.8	28.4	0.0	23.5	53.6	15.0	0.0	14.2
% WITH CAPABILITY	13.2	52.9	30.5	0.0	33.9	12.9	48.2	0.0	50.0
TURBOPROP: TOTAL									
ESTIMATED POPULATION	622	4,753	4,677	154	447	887	5,215	123	454
% STD. ERROR	20.5	3.0	2.9	34.7	20.0	16.0	1.9	42.9	18.7
% WITH CAPABILITY	10.8	82.2	80.9	2.7	7.7	15.3	90.2	2.1	7.9
FIXED WING - TURBOJET									
2 ENGINE: TOTAL									
ESTIMATED POPULATION	272	3,464	3,269	676	308	1,031	3,655	75	319
% STD. ERROR	24.5	3.1	3.7	14.7	27.2	12.0	2.6	54.5	26.9
% WITH CAPABILITY	6.7	85.3	80.5	16.6	7.6	25.4	90.0	1.9	7.8
TURBOJET: OTHER									
ESTIMATED POPULATION	62	349	314	92	96	78	383	5	108
% STD. ERROR	29.2	6.5	7.6	24.1	18.9	26.4	5.2	109.1	18.0
% WITH CAPABILITY	12.6	70.6	63.6	18.7	19.4	15.9	77.5	1.0	21.9
TURBOJET: TOTAL									
ESTIMATED POPULATION	334	3,813	3,583	768	404	1,110	4,039	80	427
% STD. ERROR	20.7	2.9	3.4	13.3	21.2	11.4	2.4	51.5	20.6
% WITH CAPABILITY	7.3	83.7	78.7	16.9	8.9	24.4	88.7	1.8	9.4

7.1 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIM ENCODE	COLLISION AVOID EQ	NO TRANS
FIXED WING: TOTAL									
ESTIMATED POPULATION	74,960	125,359	116,069	3,903	45,759	43,506	113,967	3,282	100,617
% STD. ERROR	1.9	1.2	1.1	10.0	2.3	2.9	1.1	11.7	1.2
% WITH CAPABILITY	31.3	52.3	48.4	1.6	19.1	18.1	47.5	1.4	42.0
ROTORCRAFT									
PISTON									
ESTIMATED POPULATION	1,082	1,470	182	28	2,778	315	641	27	4,406
% STD. ERROR	14.1	13.3	42.5	69.2	7.6	23.3	19.4	105.0	3.1
% WITH CAPABILITY	20.3	27.6	3.4	0.5	52.1	5.9	12.0	0.5	82.6
TURBINE									
ESTIMATED POPULATION	844	3,243	2,376	108	507	962	2,366	145	1,456
% STD. ERROR	16.5	4.6	6.9	39.1	20.8	15.5	7.3	38.4	11.4
% WITH CAPABILITY	19.0	73.1	53.6	2.4	11.4	21.7	53.4	3.3	32.8
ROTORCRAFT: TOTAL									
ESTIMATED POPULATION	1,926	4,713	2,558	136	3,285	1,276	3,008	173	5,862
% STD. ERROR	10.7	5.2	7.1	34.2	7.2	13.0	7.1	36.4	3.7
% WITH CAPABILITY	19.7	48.3	26.2	1.4	33.6	13.1	30.8	1.8	60.0
OTHER									
ESTIMATED POPULATION	1,914	2,320	550	42	5,596	116	134	10	9,679
% STD. ERROR	11.0	11.1	28.2	109.2	5.1	61.6	46.4	103.0	1.0
% WITH CAPABILITY	19.3	23.4	5.5	0.4	56.4	1.2	1.4	0.1	97.6
TOTAL									
ESTIMATED POPULATION	78,801	132,393	119,177	4,082	54,640	44,898	117,109	3,465	116,158
% STD. ERROR	1.9	1.2	1.1	9.7	2.0	2.8	1.1	11.2	1.1
% WITH CAPABILITY	30.4	51.0	45.9	1.6	21.1	17.3	45.1	1.3	44.8

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.2 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
EXECUTIVE									
ESTIMATED POPULATION	967	9,326	8,752	817	549	2,176	9,964	116	665
% STD. ERROR	18.4	4.4	4.5	12.7	22.9	10.6	4.2	42.0	21.5
% WITH CAPABILITY	8.9	85.7	80.4	7.5	5.0	20.0	91.6	1.1	6.1
BUSINESS									
ESTIMATED POPULATION	8,808	24,512	25,870	741	1,810	8,432	27,042	605	4,611
% STD. ERROR	7.1	3.8	3.7	25.1	15.5	7.2	3.5	28.3	9.6
% WITH CAPABILITY	25.2	70.2	74.1	2.1	5.2	24.1	77.4	1.7	13.2
PERSONAL									
ESTIMATED POPULATION	46,161	67,407	61,140	1,067	15,216	24,448	56,508	1,313	50,681
% STD. ERROR	2.6	2.0	2.1	22.0	4.4	4.1	2.3	18.9	2.1
% WITH CAPABILITY	37.7	55.0	49.9	0.9	12.4	20.0	46.1	1.1	41.4
INSTRUCTIONAL									
ESTIMATED POPULATION	5,072	9,935	6,175	360	1,546	3,176	6,960	349	7,019
% STD. ERROR	9.3	6.6	8.6	38.4	16.7	12.4	8.1	38.2	7.8
% WITH CAPABILITY	30.4	59.6	37.1	2.2	9.3	19.1	41.8	2.1	42.1
AERIAL APPLICATION									
ESTIMATED POPULATION	797	1,428	755	8	4,854	235	672	59	6,237
% STD. ERROR	20.8	15.3	21.5	261.3	5.1	39.2	23.4	85.8	3.7
% WITH CAPABILITY	11.3	20.3	10.7	0.1	68.9	3.3	9.5	0.8	88.6
AERIAL OBSERVATION									
ESTIMATED POPULATION	1,439	2,709	1,907	144	613	594	2,200	42	2,122
% STD. ERROR	17.6	12.3	14.6	56.7	26.5	26.8	13.8	94.5	14.1
% WITH CAPABILITY	30.3	57.0	40.1	3.0	12.9	12.5	46.3	0.9	44.6
OTHER WORK									
ESTIMATED POPULATION	566	1,159	837	4	156	302	651	75	987
% STD. ERROR	27.6	18.6	22.5	159.1	50.4	38.4	26.0	81.9	20.1
% WITH CAPABILITY	30.7	63.0	45.5	0.2	8.5	16.4	35.4	4.1	53.6
COMPUTER AIR CARRIER									
ESTIMATED POPULATION	190	739	754	22	25	189	722	55	132
% STD. ERROR	37.5	17.7	17.6	61.2	155.7	43.8	17.4	43.5	42.5
% WITH CAPABILITY	19.7	76.4	78.0	2.2	2.5	19.6	74.6	5.7	13.6

7.2 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTT ENCODE	COLLISION AVOID EQ	NO TRANS
AIR TAXI									
ESTIMATED POPULATION	1,472	4,786	4,476	166	436	1,028	5,063	125	1,096
% STD. ERROR	16.2	8.1	8.6	40.6	33.4	19.2	8.1	46.4	17.5
% WITH CAPABILITY	22.6	73.5	68.7	2.5	6.7	15.8	77.7	1.9	16.8
OTHER									
ESTIMATED POPULATION	971	2,584	1,910	45	665	589	1,883	11	1,903
% STD. ERROR	17.8	11.3	13.1	50.1	23.7	21.0	12.5	86.5	13.8
% WITH CAPABILITY	23.8	63.3	46.8	1.1	16.3	14.4	46.1	0.3	46.6
INACTIVE									
ESTIMATED POPULATION	12,683	8,237	6,908	573	28,340	4,064	5,644	597	40,375
% STD. ERROR	4.4	6.0	5.6	24.2	2.2	9.0	7.0	23.6	1.1
% WITH CAPABILITY	25.8	16.7	14.0	1.2	57.6	8.3	11.5	1.2	82.1
TOTAL									
ESTIMATED POPULATION	78,801	132,393	119,177	4,082	54,640	44,898	117,109	3,465	116,158
% STD. ERROR	1.9	1.2	1.1	9.7	2.0	2.8	1.1	11.2	1.1
% WITH CAPABILITY	30.4	51.0	45.9	1.6	21.1	17.3	45.1	1.3	44.8

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.3 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIM ENCODE	COLLISION AVOID EQ	NO TRANS
ALASKAN									
ESTIMATED POPULATION	3,706	3,657	1,895	20	1,328	1,140	1,071	16	6,003
% STD. ERROR	10.1	10.4	15.1	84.4	17.8	20.0	20.0	97.7	7.6
% WITH CAPABILITY	45.4	44.8	23.2	0.2	16.3	14.0	13.1	0.2	73.6
CENTRAL									
ESTIMATED POPULATION	4,235	6,948	6,247	168	3,168	2,608	5,692	137	6,428
% STD. ERROR	10.3	7.9	8.4	51.0	10.8	13.1	8.7	59.2	7.8
% WITH CAPABILITY	30.9	50.8	45.6	1.2	23.1	19.0	41.6	1.0	47.0
EASTERN									
ESTIMATED POPULATION	8,895	14,650	14,686	581	5,001	5,510	14,170	435	11,061
% STD. ERROR	6.9	5.3	5.3	24.7	8.6	9.0	5.4	32.5	5.8
% WITH CAPABILITY	31.7	52.3	52.4	2.1	17.8	19.7	50.5	1.6	39.4
GREAT LAKES									
ESTIMATED POPULATION	12,538	23,355	20,152	414	8,067	6,794	18,325	524	20,202
% STD. ERROR	5.7	4.2	4.5	26.9	6.5	8.0	4.7	28.5	4.3
% WITH CAPABILITY	29.5	54.9	47.4	1.0	19.0	16.0	43.1	1.2	47.5
NEW ENGLAND									
ESTIMATED POPULATION	2,978	5,824	4,738	115	1,325	1,940	5,233	71	4,147
% STD. ERROR	12.2	8.8	9.8	52.6	14.5	15.6	9.3	73.4	9.8
% WITH CAPABILITY	28.8	56.3	45.8	1.1	17.6	18.7	50.5	0.7	40.1
NORTHWEST MOUNTAIN									
ESTIMATED POPULATION	7,290	11,995	9,859	211	3,761	3,922	10,028	340	9,815
% STD. ERROR	7.7	6.0	6.6	48.0	9.8	10.9	6.5	37.3	6.3
% WITH CAPABILITY	32.4	53.3	43.8	0.9	16.7	17.4	44.6	1.5	43.6
SOUTHERN									
ESTIMATED POPULATION	11,715	21,817	20,550	886	6,378	7,286	20,237	526	14,292
% STD. ERROR	6.1	4.2	4.4	21.1	7.7	7.7	4.4	27.9	5.2
% WITH CAPABILITY	30.3	56.4	53.2	2.3	16.5	18.8	52.3	1.4	37.0

7.3 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY REGION OF BASED AIRCRAFT

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REGION	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
SOUTHWESTERN ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	9,260	17,219	16,527	1,123	6,860	6,576	15,549	405	13,722
	6.7	4.9	5.0	20.5	7.1	8.2	5.1	31.9	5.2
	28.1	52.2	50.1	3.4	20.8	19.9	47.1	1.2	41.6
WESTERN-PACIFIC ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	14,335	23,187	21,339	359	6,698	7,456	23,735	758	15,737
	5.4	4.1	4.3	32.8	7.3	7.7	4.0	25.2	4.7
	33.0	53.4	49.1	0.8	15.4	17.2	54.6	1.7	36.2
TOTAL	78,801	132,393	119,177	4,082	54,640	44,898	117,109	3,465	116,158
ESTIMATED POPULATION	1.9	1.2	1.1	9.7	2.0	2.8	1.1	11.2	1.1
& STD. ERROR	30.4	51.0	45.9	1.6	21.1	17.3	45.1	1.3	44.8
& WITH CAPABILITY									

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTTT ENCODE	COLLISION AVOID EQ	NO TRANS
ALABAMA									
ESTIMATED POPULATION	561	1,764	1,413	41	677	679	1,505	3	1,034
% STD. ERROR	27.7	16.1	17.9	111.4	24.8	26.0	17.4	306.3	19.8
% WITH CAPABILITY	19.3	60.7	48.6	1.4	23.3	23.4	51.8	0.1	35.6
ALASKA									
ESTIMATED POPULATION	3,706	3,657	1,895	20	1,328	1,140	1,071	16	6,003
% STD. ERROR	10.1	10.4	15.1	84.4	17.8	20.0	20.0	97.7	7.6
% WITH CAPABILITY	45.4	44.8	23.2	0.2	16.3	14.0	13.1	0.2	73.6
ARIZONA									
ESTIMATED POPULATION	1,757	3,410	2,663	55	983	1,169	2,889	194	2,307
% STD. ERROR	15.8	11.3	12.9	87.0	19.7	19.0	12.4	53.1	13.2
% WITH CAPABILITY	29.5	57.3	44.8	0.9	16.5	19.7	48.6	3.3	38.8
ARKANSAS									
ESTIMATED POPULATION	708	930	979	108	858	498	932	23	1,280
% STD. ERROR	25.2	21.5	21.6	69.4	21.4	29.9	21.7	124.5	17.8
% WITH CAPABILITY	27.7	36.4	38.3	4.2	33.6	19.5	36.5	0.9	50.1
CALIFORNIA									
ESTIMATED POPULATION	11,556	18,110	17,137	217	5,213	5,616	19,358	555	12,041
% STD. ERROR	6.1	4.7	4.9	42.1	8.2	9.1	4.6	28.9	5.4
% WITH CAPABILITY	33.6	52.7	49.9	0.6	15.2	16.3	56.3	1.6	35.0
COLORADO									
ESTIMATED POPULATION	1,257	2,281	2,183	82	736	929	2,034	95	1,578
% STD. ERROR	19.0	14.6	14.8	76.9	23.4	23.2	15.4	71.0	16.2
% WITH CAPABILITY	29.3	53.1	50.8	1.9	17.2	21.6	47.4	2.2	36.8
CONNECTICUT									
ESTIMATED POPULATION	555	1,600	1,226	10	383	415	1,340	1	985
% STD. ERROR	29.0	17.1	19.4	165.7	30.9	34.4	18.8	226.9	20.6
% WITH CAPABILITY	22.8	65.7	50.3	0.4	15.7	17.0	55.0	0.0	40.5
DELAWARE									
ESTIMATED POPULATION	342	709	679	89	146	503	749	110	278
% STD. ERROR	38.2	23.1	24.2	72.7	55.1	30.1	23.2	69.3	39.4
% WITH CAPABILITY	28.8	59.8	57.3	7.5	12.3	42.5	63.2	9.3	23.4

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
DIST. OF COLUMBIA									
ESTIMATED POPULATION									
% STD. ERROR	2	50	30	3	87	9	24	0	107
% WITH CAPABILITY	406.7	90.4	105.1	221.4	80.5	158.7	120.5	0.0	72.1
	1.2	36.2	21.8	1.8	62.7	6.9	17.4	0.0	77.1
FLORIDA									
ESTIMATED POPULATION	4,627	9,472	6,647	323	2,078	2,494	8,949	206	5,180
% STD. ERROR	9.5	6.7	7.0	31.7	14.1	12.6	6.9	41.2	8.9
% WITH CAPABILITY	29.9	61.1	55.8	2.2	13.4	16.1	57.7	1.3	33.4
GEORGIA									
ESTIMATED POPULATION	1,997	2,702	2,848	186	1,141	1,384	2,519	66	2,290
% STD. ERROR	15.1	12.4	12.3	47.5	18.5	18.3	12.9	87.4	13.2
% WITH CAPABILITY	35.7	48.3	50.9	3.3	20.4	24.7	45.0	1.2	40.9
HAWAII									
ESTIMATED POPULATION	222	303	225	5	117	217	332	4	196
% STD. ERROR	39.1	37.5	44.2	199.8	66.9	44.0	36.0	290.8	45.4
% WITH CAPABILITY	33.8	46.1	34.2	0.7	17.8	33.1	50.5	0.7	29.9
IDAHO									
ESTIMATED POPULATION	813	1,027	868	7	457	453	830	4	1,030
% STD. ERROR	23.9	20.7	23.1	103.4	28.3	32.8	23.7	226.7	19.4
% WITH CAPABILITY	37.1	46.9	39.6	0.3	20.8	20.7	37.8	0.2	47.0
ILLINOIS									
ESTIMATED POPULATION	2,053	5,165	4,450	103	1,458	1,281	4,093	166	3,449
% STD. ERROR	14.5	9.3	9.8	53.8	15.0	18.5	10.4	51.4	10.7
% WITH CAPABILITY	25.1	63.2	54.5	1.3	17.8	15.7	50.1	2.0	42.2
INDIANA									
ESTIMATED POPULATION	1,311	2,764	2,536	4	652	881	2,015	2	2,093
% STD. ERROR	18.0	12.8	13.3	114.1	23.4	22.6	14.7	252.9	14.2
% WITH CAPABILITY	28.3	59.7	54.7	0.1	14.1	19.0	43.5	0.0	45.2
IOWA									
ESTIMATED POPULATION	881	1,414	1,370	40	592	467	1,327	45	1,234
% STD. ERROR	23.1	17.7	18.5	108.2	24.9	31.2	18.2	101.9	18.4
% WITH CAPABILITY	30.9	49.6	48.0	1.4	20.8	16.4	46.5	1.6	43.3

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MCD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
KANSAS									
ESTIMATED POPULATION	1,160	2,060	1,810	89	942	672	1,633	75	1,843
% STD. ERROR	19.9	14.6	15.8	77.9	19.9	26.1	16.5	83.8	14.6
% WITH CAPABILITY	29.7	52.7	46.3	2.3	24.1	17.2	41.8	1.9	47.1
KENTUCKY									
ESTIMATED POPULATION	531	1,222	1,072	65	243	205	1,026	54	719
% STD. ERROR	29.1	18.6	20.3	86.1	40.9	42.1	19.9	96.6	24.7
% WITH CAPABILITY	27.9	64.2	56.3	3.4	12.8	10.8	53.9	2.8	37.8
LOUISIANA									
ESTIMATED POPULATION	900	1,866	1,706	57	755	559	1,841	88	1,175
% STD. ERROR	21.7	14.9	15.7	92.8	22.1	29.2	15.1	78.2	17.4
% WITH CAPABILITY	26.5	54.9	50.2	1.7	22.2	16.5	54.2	2.6	34.6
MAINE									
ESTIMATED POPULATION	369	690	438	31	477	191	489	0	855
% STD. ERROR	34.0	24.8	32.0	112.9	29.2	48.7	30.5	0.0	21.2
% WITH CAPABILITY	24.5	45.8	29.1	2.1	31.7	12.7	32.5	0.0	56.8
MARYLAND									
ESTIMATED POPULATION	1,052	2,040	2,072	11	455	771	1,967	11	1,241
% STD. ERROR	20.5	15.0	15.0	198.4	28.1	25.0	15.4	142.8	17.7
% WITH CAPABILITY	30.4	59.0	59.9	0.3	13.2	22.3	56.9	0.3	35.9
MASSACHUSETTS									
ESTIMATED POPULATION	1,064	2,441	2,045	57	403	794	2,252	49	1,209
% STD. ERROR	20.9	13.9	15.2	72.9	28.1	25.2	14.6	91.9	18.1
% WITH CAPABILITY	28.3	64.9	54.4	1.5	10.7	21.1	59.9	1.3	32.1
MICHIGAN									
ESTIMATED POPULATION	2,585	4,411	4,010	80	1,084	1,057	3,541	31	3,811
% STD. ERROR	13.1	10.3	10.7	44.4	18.0	20.6	11.4	48.1	10.5
% WITH CAPABILITY	32.7	55.7	50.7	1.0	13.7	13.4	44.7	0.4	48.1
MINNESOTA									
ESTIMATED POPULATION	1,457	2,800	2,017	16	1,434	979	1,868	8	3,033
% STD. ERROR	17.3	12.7	15.2	100.7	16.9	21.5	15.5	116.5	11.7
% WITH CAPABILITY	26.0	50.0	36.0	0.3	25.6	17.5	33.4	0.1	54.2

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTTT ENCODE	COLLISION AVOID EQ	NO TRANS
MISSISSIPPI									
ESTIMATED POPULATION	385	1,066	795	2	717	359	871	4	985
* STD. ERROR	33.7	20.2	23.6	207.5	23.7	37.1	22.2	240.9	20.0
* WITH CAPABILITY	18.3	50.6	37.7	0.1	34.0	17.1	41.3	0.2	46.7
MISSOURI									
ESTIMATED POPULATION	1,442	2,687	2,029	31	1,013	972	2,012	15	2,201
* STD. ERROR	18.0	12.7	14.9	77.6	19.8	21.6	14.9	143.9	13.7
* WITH CAPABILITY	30.1	56.1	42.3	0.6	21.1	20.3	42.0	0.3	45.9
MONTANA									
ESTIMATED POPULATION	888	630	528	0	475	228	572	0	1,241
* STD. ERROR	22.9	26.9	29.2	0.0	29.4	46.5	28.6	0.0	18.7
* WITH CAPABILITY	45.7	32.4	27.2	0.0	24.4	11.8	29.4	0.0	63.9
NEBRASKA									
ESTIMATED POPULATION	752	786	1,039	9	621	496	721	1	1,151
* STD. ERROR	24.0	24.1	21.2	126.5	24.6	30.0	25.2	257.9	18.7
* WITH CAPABILITY	35.2	36.8	48.6	0.4	29.0	23.2	33.7	0.1	53.8
NEVADA									
ESTIMATED POPULATION	765	1,308	1,250	83	366	406	1,100	3	1,164
* STD. ERROR	24.1	18.0	18.5	68.5	33.6	32.5	19.2	305.0	19.5
* WITH CAPABILITY	32.3	55.3	52.8	3.5	15.5	17.1	46.5	0.1	49.2
NEW HAMPSHIRE									
ESTIMATED POPULATION	614	410	461	8	408	362	536	13	633
* STD. ERROR	26.3	28.7	30.9	105.7	32.6	35.6	25.7	139.3	25.4
* WITH CAPABILITY	42.1	28.1	31.6	0.6	28.0	24.8	36.8	0.9	43.4
NEW JERSEY									
ESTIMATED POPULATION	1,218	2,627	2,668	126	735	534	2,712	78	1,441
* STD. ERROR	19.0	13.0	12.8	47.6	22.6	29.5	12.7	76.6	16.6
* WITH CAPABILITY	27.6	59.5	60.4	2.9	16.6	12.1	61.4	1.8	32.6
NEW MEXICO									
ESTIMATED POPULATION	642	1,316	1,140	47	594	443	1,175	72	1,216
* STD. ERROR	26.9	18.3	19.8	106.1	26.5	32.1	19.9	85.4	18.7
* WITH CAPABILITY	24.7	50.7	43.9	1.8	22.9	17.0	45.2	2.8	46.8

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ YS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
NEW YORK									
ESTIMATED POPULATION	2,363	3,075	3,363	163	1,530	1,360	2,998	165	3,334
% STD. ERROR	13.5	11.7	11.5	49.7	15.5	18.4	12.1	53.5	10.7
% WITH CAPABILITY	33.6	43.7	47.8	2.3	21.8	19.4	42.7	2.3	47.4
NORTH CAROLINA									
ESTIMATED POPULATION	1,856	2,656	2,819	192	633	1,060	2,725	140	1,809
% STD. ERROR	16.2	12.7	12.6	47.0	22.7	21.4	12.8	56.0	14.9
% WITH CAPABILITY	35.8	51.3	54.4	3.7	12.2	20.5	52.6	2.7	34.9
NORTH DAKOTA									
ESTIMATED POPULATION	511	507	301	0	594	251	243	0	1,163
% STD. ERROR	30.5	29.8	39.4	0.0	25.6	44.7	43.0	0.0	18.9
% WITH CAPABILITY	31.2	31.0	18.4	0.0	36.2	15.4	14.8	0.0	71.0
OHIO									
ESTIMATED POPULATION	2,481	5,020	4,556	145	1,192	1,521	4,380	84	3,097
% STD. ERROR	13.2	9.4	9.8	49.7	16.7	16.6	9.9	71.6	11.3
% WITH CAPABILITY	29.7	60.2	54.6	1.7	14.3	18.2	52.5	1.0	37.1
OKLAHOMA									
ESTIMATED POPULATION	1,828	2,385	2,626	228	847	830	1,914	94	2,544
% STD. ERROR	16.0	13.6	13.1	44.0	20.7	24.0	15.0	57.5	13.0
% WITH CAPABILITY	37.5	48.9	53.8	4.7	17.4	17.0	39.2	1.9	52.2
OREGON									
ESTIMATED POPULATION	1,262	2,911	2,095	4	652	807	2,303	58	1,907
% STD. ERROR	18.9	12.3	14.6	210.3	24.0	23.8	13.8	92.6	14.7
% WITH CAPABILITY	26.4	60.9	43.8	0.1	13.6	16.9	48.2	1.2	39.9
PENNSYLVANIA									
ESTIMATED POPULATION	2,361	3,313	3,414	84	1,251	1,272	3,421	67	2,676
% STD. ERROR	13.6	11.3	11.3	37.2	17.9	18.6	11.3	74.8	12.0
% WITH CAPABILITY	34.5	48.5	49.9	1.2	18.3	18.6	50.1	1.0	39.2
RHODE ISLAND									
ESTIMATED POPULATION	178	326	301	6	35	90	342	6	127
% STD. ERROR	53.4	37.8	39.6	260.1	101.7	73.5	37.5	303.6	58.2
% WITH CAPABILITY	33.9	62.0	57.3	1.2	6.6	17.1	64.9	1.1	24.1

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
SOUTH CAROLINA									
ESTIMATED POPULATION	580	1,286	1,210	20	351	245	1,052	18	1,033
% STD. ERROR	28.0	18.9	19.9	125.6	32.4	44.1	21.2	130.2	20.2
% WITH CAPABILITY	26.3	58.3	54.9	0.9	15.9	11.1	47.7	0.6	46.9
SOUTH DAKOTA									
ESTIMATED POPULATION	477	474	432	11	448	221	245	78	865
% STD. ERROR	32.2	31.8	33.8	185.1	28.9	46.8	42.9	77.2	22.3
% WITH CAPABILITY	36.3	36.1	32.9	0.9	34.1	16.8	18.7	6.0	65.8
TENNESSEE									
ESTIMATED POPULATION	1,144	1,594	1,693	44	532	831	1,545	27	1,218
% STD. ERROR	20.0	16.4	16.4	97.2	28.2	23.8	16.9	125.7	18.7
% WITH CAPABILITY	36.1	50.2	53.4	1.4	16.8	26.2	48.7	0.9	38.4
TEXAS									
ESTIMATED POPULATION	5,182	10,722	10,076	682	3,806	4,246	9,687	129	7,506
% STD. ERROR	8.8	6.3	6.6	26.3	9.7	10.2	6.6	52.0	7.1
% WITH CAPABILITY	26.5	54.8	51.5	3.5	19.5	21.7	49.5	0.7	38.4
UTAH									
ESTIMATED POPULATION	341	852	562	1	124	227	676	0	529
% STD. ERROR	36.3	22.9	26.4	207.3	60.1	45.7	24.8	0.0	30.2
% WITH CAPABILITY	26.7	66.6	43.9	0.1	9.7	17.7	52.9	0.0	41.4
VERMONT									
ESTIMATED POPULATION	199	357	268	2	120	88	275	2	337
% STD. ERROR	46.1	36.1	42.7	357.9	64.6	58.7	41.4	357.9	37.2
% WITH CAPABILITY	29.8	53.5	40.1	0.4	17.9	13.2	41.2	0.4	50.6
VIRGINIA									
ESTIMATED POPULATION	1,016	2,164	1,879	87	600	730	1,756	5	1,542
% STD. ERROR	20.2	14.6	15.4	73.5	24.7	25.0	15.8	191.0	16.3
% WITH CAPABILITY	27.2	57.9	50.3	2.3	16.1	19.6	47.0	0.1	41.3
WASHINGTON									
ESTIMATED POPULATION	2,487	3,829	3,159	116	1,158	1,086	3,240	171	3,142
% STD. ERROR	13.1	10.8	12.1	67.3	16.6	20.5	11.7	53.0	11.0
% WITH CAPABILITY	34.9	53.8	44.4	1.6	16.3	15.3	45.5	2.4	44.1

7.4 1988 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS AND TRANSPONDER EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT			
	360 CH	720 CH	2+ SYS	COCKPIT VCE REC	NO VHF	MOD S CAP	ALTIT ENCODE	COLLISION AVOID EQ	NO TRANS
WEST VIRGINIA									
ESTIMATED POPULATION	542	673	582	19	197	329	544	0	443
% STD. ERROR	29.1	26.3	27.9	171.4	42.9	36.9	28.7	0.0	31.6
% WITH CAPABILITY	43.5	54.0	46.7	1.5	15.8	26.4	43.6	0.0	35.5
WISCONSIN									
ESTIMATED POPULATION	1,664	2,214	1,849	55	1,206	603	1,940	154	2,690
% STD. ERROR	16.3	14.4	15.8	87.6	17.3	27.7	15.4	55.8	12.2
% WITH CAPABILITY	33.7	44.9	37.5	1.1	24.5	12.2	39.3	3.1	54.5
WYOMING									
ESTIMATED POPULATION	242	465	465	0	158	192	373	12	387
% STD. ERROR	43.7	30.9	32.2	0.0	52.2	49.4	34.5	161.7	34.0
% WITH CAPABILITY	26.9	51.6	51.6	0.0	17.5	21.3	41.4	1.3	42.9
PUERTO RICO									
ESTIMATED POPULATION	34	55	54	3	5	27	45	8	24
% STD. ERROR	123.7	83.3	88.1	423.0	303.3	134.4	91.0	192.1	143.4
% WITH CAPABILITY	38.3	62.1	60.1	3.5	5.9	30.7	50.5	8.5	26.8
OTHER U.S. TERRITORIES									
ESTIMATED POPULATION	33	55	64	0	19	48	57	2	28
% STD. ERROR	116.3	85.2	80.3	0.0	157.0	91.1	86.2	249.3	126.1
% WITH CAPABILITY	30.6	50.6	58.2	0.0	17.4	43.7	52.2	1.5	25.5
TOTAL									
ESTIMATED POPULATION	78,801	132,393	119,177	4,082	54,640	44,898	117,109	3,465	116,158
% STD. ERROR	1.9	1.2	1.1	9.7	2.0	2.8	1.1	11.2	1.1
% WITH CAPABILITY	30.4	51.0	45.9	1.6	21.1	17.3	45.1	1.3	44.8

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.5 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
FIXED WING					
FIXED WING - PISTON					
1 ENG: 1-3 SEATS					
ESTIMATED POPULATION	11,010	7,354	6,443	183	71,761
% STD. ERROR	5.6	7.0	7.7	50.6	0.9
% WITH CAPABILITY	13.0	8.7	7.6	0.2	84.9
1 ENG: 4+ SEATS					
ESTIMATED POPULATION	81,219	80,940	76,475	1,109	29,474
% STD. ERROR	1.2	1.2	1.3	20.6	3.0
% WITH CAPABILITY	68.6	68.4	64.6	0.9	24.9
1 ENGINE: TOTAL					
ESTIMATED POPULATION	92,229	88,294	82,919	1,292	101,235
% STD. ERROR	1.3	1.2	1.4	19.1	1.1
% WITH CAPABILITY	45.5	43.5	40.9	0.6	49.9
2 ENG: 1-6 SEATS					
ESTIMATED POPULATION	15,467	15,389	14,812	410	1,611
% STD. ERROR	1.6	1.6	1.9	32.3	13.7
% WITH CAPABILITY	88.3	87.9	84.6	2.3	9.2
2 ENG: 7+ SEATS					
ESTIMATED POPULATION	7,765	7,561	7,076	79	946
% STD. ERROR	2.2	2.3	3.1	48.2	17.3
% WITH CAPABILITY	88.2	85.9	80.4	0.9	10.7
2 ENGINE: TOTAL					
ESTIMATED POPULATION	23,232	22,950	21,888	490	2,556
% STD. ERROR	1.3	1.3	1.6	28.2	10.7
% WITH CAPABILITY	88.3	87.2	83.2	1.9	9.7
PISTON: OTHER					
ESTIMATED POPULATION	54	47	48	9	118
% STD. ERROR	37.6	41.2	40.7	84.7	17.7
% WITH CAPABILITY	29.8	26.0	26.8	4.8	65.4
PISTON: TOTAL					
ESTIMATED POPULATION	115,515	111,291	104,855	1,790	103,909
% STD. ERROR	1.0	1.0	1.1	15.8	1.1
% WITH CAPABILITY	50.4	48.5	45.7	0.8	45.3

7.5 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
FIXED WING - TURBOPROP					
2 ENG: 1-12 SEATS					
ESTIMATED POPULATION	4,285	4,298	4,201	100	176
% STD. ERROR	1.7	1.7	2.1	46.6	33.9
% WITH CAPABILITY	94.3	94.6	92.5	2.2	3.9
2 ENG: 13+ SEATS					
ESTIMATED POPULATION	836	942	866	29	58
% STD. ERROR	5.2	3.0	4.8	57.2	42.5
% WITH CAPABILITY	82.7	93.3	85.8	2.9	5.8
2 ENGINE: TOTAL					
ESTIMATED POPULATION	5,121	5,240	5,067	129	234
% STD. ERROR	1.7	1.5	1.9	38.4	27.5
% WITH CAPABILITY	92.2	94.4	91.3	2.3	4.2
TURBOPROP: OTHER					
ESTIMATED POPULATION	111	112	112	2	117
% STD. ERROR	15.0	14.9	14.9	211.9	14.1
% WITH CAPABILITY	48.3	48.5	48.5	1.0	51.0
TURBOPROP: TOTAL					
ESTIMATED POPULATION	5,232	5,352	5,179	132	351
% STD. ERROR	1.7	1.5	1.9	37.9	18.9
% WITH CAPABILITY	90.5	92.5	89.6	2.3	6.1
FIXED WING - TURBOJET					
2 ENGINE: TOTAL					
ESTIMATED POPULATION	3,664	3,662	3,435	218	323
% STD. ERROR	2.6	2.6	3.2	28.6	26.8
% WITH CAPABILITY	90.2	90.2	84.6	5.4	8.0
TURBOJET: OTHER					
ESTIMATED POPULATION	377	358	370	10	107
% STD. ERROR	5.4	5.9	5.6	83.1	17.7
% WITH CAPABILITY	76.4	72.5	75.0	2.0	21.6
TURBOJET: TOTAL					
ESTIMATED POPULATION	4,041	4,020	3,805	228	430
% STD. ERROR	2.4	2.4	3.0	27.6	20.6
% WITH CAPABILITY	88.7	88.3	83.5	5.0	9.4

7.5 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
FIXED WING: TOTAL					
ESTIMATED POPULATION	124,788	120,663	113,839	2,149	104,690
% STD. ERROR	1.0	1.0	1.0	13.7	1.1
% WITH CAPABILITY	52.0	50.3	47.5	0.9	43.7
ROTORCRAFT					
PISTON					
ESTIMATED POPULATION	78	45	40	35	5,220
% STD. ERROR	40.6	62.2	70.5	59.4	0.8
% WITH CAPABILITY	1.5	0.8	0.8	0.7	97.9
TURBINE					
ESTIMATED POPULATION	1,641	1,346	1,437	85	2,654
% STD. ERROR	9.6	10.7	10.3	53.9	6.0
% WITH CAPABILITY	37.0	30.4	32.4	1.9	59.9
ROTORCRAFT: TOTAL					
ESTIMATED POPULATION	1,719	1,391	1,478	120	7,875
% STD. ERROR	9.4	10.5	10.2	42.0	2.1
% WITH CAPABILITY	17.6	14.2	15.1	1.2	80.6
OTHER					
ESTIMATED POPULATION	67	60	64	0	9,841
% STD. ERROR	80.3	89.5	84.4	0.0	0.5
% WITH CAPABILITY	0.7	0.6	0.6	0.0	99.2
TOTAL					
ESTIMATED POPULATION	126,573	122,114	115,380	2,269	122,406
% STD. ERROR	1.0	0.9	1.0	13.1	0.9
% WITH CAPABILITY	48.8	47.1	44.5	0.9	47.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.6 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
EXECUTIVE					
ESTIMATED POPULATION	9,871	9,757	9,511	430	784
% STD. ERROR	4.2	4.2	4.3	26.0	19.1
% WITH CAPABILITY	90.7	89.7	87.4	4.0	7.2
BUSINESS					
ESTIMATED POPULATION	29,052	28,594	27,905	365	4,410
% STD. ERROR	3.4	3.4	3.5	35.6	9.7
% WITH CAPABILITY	83.2	81.9	79.9	1.0	12.6
PERSONAL					
ESTIMATED POPULATION	60,894	59,757	55,218	402	55,394
% STD. ERROR	2.1	2.1	2.2	33.9	1.9
% WITH CAPABILITY	49.7	48.8	45.1	0.3	45.2
INSTRUCTIONAL					
ESTIMATED POPULATION	8,211	7,022	6,437	140	7,696
% STD. ERROR	7.4	8.1	8.4	61.5	7.2
% WITH CAPABILITY	49.3	42.1	38.6	0.8	46.2
AERIAL APPLICATION					
ESTIMATED POPULATION	585	487	535	33	6,370
% STD. ERROR	25.5	29.4	27.9	61.3	3.7
% WITH CAPABILITY	8.3	6.9	7.6	0.5	90.5
AERIAL OBSERVATION					
ESTIMATED POPULATION	2,140	1,921	1,859	77	2,486
% STD. ERROR	14.2	15.1	15.2	77.4	12.8
% WITH CAPABILITY	45.0	40.4	39.1	1.6	52.3
OTHER WORK					
ESTIMATED POPULATION	694	534	518	2	1,144
% STD. ERROR	25.2	28.1	28.7	251.7	18.5
% WITH CAPABILITY	37.7	29.0	28.1	0.1	62.2
COMMUTER AIR CARRIER					
ESTIMATED POPULATION	764	764	762	18	185
% STD. ERROR	17.1	17.1	17.2	71.3	40.2
% WITH CAPABILITY	79.0	79.0	78.8	1.9	19.1

7.6 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
AIR TAXI					
ESTIMATED POPULATION	5,377	5,150	4,567	183	1,048
% STD. ERROR	7.8	8.0	8.7	48.4	17.3
% WITH CAPABILITY	82.5	79.1	70.1	2.8	16.1
OTHER					
ESTIMATED POPULATION	1,919	1,842	1,727	54	2,065
% STD. ERROR	13.1	13.3	14.0	59.1	12.4
% WITH CAPABILITY	47.0	45.1	42.3	1.3	50.6
INACTIVE					
ESTIMATED POPULATION	7,355	6,462	6,413	513	40,611
% STD. ERROR	5.6	5.9	6.0	25.5	1.0
% WITH CAPABILITY	14.9	13.1	13.0	1.0	82.5
TOTAL					
ESTIMATED POPULATION	126,573	122,114	115,380	2,269	122,406
% STD. ERROR	1.0	0.9	1.0	13.1	0.9
% WITH CAPABILITY	48.8	47.1	44.5	0.9	47.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.7 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
ALASKAN					
ESTIMATED POPULATION	2,430	2,026	1,744	4	5,420
% STD. ERROR	12.6	14.4	15.6	156.1	8.0
% WITH CAPABILITY	29.8	24.8	21.4	0.0	66.4
CENTRAL					
ESTIMATED POPULATION	6,427	6,282	5,787	143	6,528
% STD. ERROR	8.3	8.4	8.7	50.9	7.7
% WITH CAPABILITY	46.9	45.9	42.3	1.0	47.7
EASTERN					
ESTIMATED POPULATION	15,193	14,969	14,323	296	11,618
% STD. ERROR	5.2	5.2	5.4	37.1	5.6
% WITH CAPABILITY	54.2	53.4	51.1	1.1	41.4
EUROPEAN OFFICE					
ESTIMATED POPULATION	0	0	0	0	0
% STD. ERROR	0.0	0.0	0.0	0.0	0.0
% WITH CAPABILITY	0.0	0.0	0.0	0.0	0.0
GREAT LAKES					
ESTIMATED POPULATION	20,724	19,971	18,523	202	19,936
% STD. ERROR	4.4	4.5	4.7	39.8	4.2
% WITH CAPABILITY	48.7	46.9	43.5	0.5	46.9
NEW ENGLAND					
ESTIMATED POPULATION	5,461	5,054	4,819	68	4,647
% STD. ERROR	9.1	9.5	9.8	65.0	9.3
% WITH CAPABILITY	52.8	48.8	46.5	0.7	44.9
NORTHWEST MOUNTAIN					
ESTIMATED POPULATION	10,615	10,100	9,450	61	10,942
% STD. ERROR	6.3	6.5	6.8	67.8	6.0
% WITH CAPABILITY	47.2	44.9	42.0	0.3	48.6
SOUTHERN					
ESTIMATED POPULATION	22,369	21,322	20,391	480	14,641
% STD. ERROR	4.2	4.2	4.3	29.8	5.1
% WITH CAPABILITY	57.9	55.2	52.7	1.2	37.9

7.7 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	PRECISION APPROACH EQUIPMENT				
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	NO PAR
SOUTHWESTERN ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	16,964	16,127	15,571	538	14,935
	4.9	5.0	5.1	29.1	4.9
	51.4	48.9	47.2	1.6	45.3
WESTERN-PACIFIC ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	22,909	22,755	21,613	289	18,620
	4.1	4.1	4.3	33.6	4.4
	52.7	52.4	49.7	0.7	42.9
TOTAL ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	126,573	122,114	115,380	2,269	122,406
	1.0	0.9	1.0	13.1	0.9
	48.8	47.1	44.5	0.9	47.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
ALABAMA					
ESTIMATED POPULATION	1,540	1,764	1,687	5	1,104
% STD. ERROR	17.1	16.2	16.5	254.0	19.3
% WITH CAPABILITY	53.0	60.7	58.0	0.2	38.0
ALASKA					
ESTIMATED POPULATION	2,430	2,026	1,744	4	5,420
% STD. ERROR	12.6	14.4	15.6	156.1	8.0
% WITH CAPABILITY	29.8	24.8	21.4	0.0	66.4
ARIZONA					
ESTIMATED POPULATION	2,670	2,670	2,501	2	3,004
% STD. ERROR	12.9	13.0	13.4	306.7	11.6
% WITH CAPABILITY	44.9	44.9	42.1	0.0	50.5
ARKANSAS					
ESTIMATED POPULATION	1,171	1,080	1,043	0	1,295
% STD. ERROR	19.7	20.4	20.8	0.0	17.5
% WITH CAPABILITY	45.8	42.3	40.8	0.0	50.7
CALIFORNIA					
ESTIMATED POPULATION	18,836	18,626	17,912	278	14,055
% STD. ERROR	4.6	4.7	4.8	34.2	5.1
% WITH CAPABILITY	54.8	54.2	52.1	0.8	40.9
COLORADO					
ESTIMATED POPULATION	2,105	2,132	2,055	21	2,019
% STD. ERROR	15.0	15.1	15.4	49.0	14.7
% WITH CAPABILITY	49.0	49.7	47.9	0.5	47.0
CONNECTICUT					
ESTIMATED POPULATION	1,419	1,292	1,345	48	991
% STD. ERROR	18.3	19.1	18.8	75.1	20.6
% WITH CAPABILITY	58.3	53.1	55.2	2.0	40.7
DELAWARE					
ESTIMATED POPULATION	678	694	599	81	401
% STD. ERROR	24.3	24.1	25.5	78.7	33.3
% WITH CAPABILITY	57.2	58.6	50.5	6.8	33.8

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
DIST. OF COLUMBIA					
ESTIMATED POPULATION	48	48	26	0	90
% STD. ERROR	91.3	91.3	113.7	0.0	78.6
% WITH CAPABILITY	34.9	34.9	19.1	0.0	65.1
FLORIDA					
ESTIMATED POPULATION	9,821	9,076	8,577	256	5,145
% STD. ERROR	6.6	6.8	7.0	41.1	8.8
% WITH CAPABILITY	63.4	58.6	55.3	1.6	33.2
GEORGIA					
ESTIMATED POPULATION	2,946	2,598	2,752	2	2,464
% STD. ERROR	12.1	12.8	12.5	135.9	12.7
% WITH CAPABILITY	52.6	46.4	49.2	0.0	44.0
HAWAII					
ESTIMATED POPULATION	239	188	208	4	383
% STD. ERROR	41.8	46.3	44.7	290.8	32.2
% WITH CAPABILITY	36.5	28.6	31.7	0.7	58.2
IDAHO					
ESTIMATED POPULATION	771	781	728	0	1,336
% STD. ERROR	24.0	24.1	25.0	0.0	17.6
% WITH CAPABILITY	35.2	35.6	33.2	0.0	60.9
ILLINOIS					
ESTIMATED POPULATION	4,759	4,425	4,076	10	3,181
% STD. ERROR	9.7	10.0	10.4	89.5	10.9
% WITH CAPABILITY	58.3	54.2	49.9	0.1	38.9
INDIANA					
ESTIMATED POPULATION	2,437	2,418	2,420	34	1,833
% STD. ERROR	13.6	13.7	13.7	94.6	14.7
% WITH CAPABILITY	52.6	52.2	52.2	0.7	39.6
IOWA					
ESTIMATED POPULATION	1,387	1,325	1,324	54	1,323
% STD. ERROR	17.9	18.3	18.4	38.8	17.7
% WITH CAPABILITY	48.7	46.5	46.5	1.9	46.4

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
KANSAS					
ESTIMATED POPULATION	1,835	1,844	1,173	71	1,847
% STD. ERROR	15.7	15.7	16.0	69.8	14.5
% WITH CAPABILITY	46.9	47.2	45.4	1.8	47.2
KENTUCKY					
ESTIMATED POPULATION	1,124	1,137	1,056	77	625
% STD. ERROR	19.5	19.6	20.1	79.0	25.0
% WITH CAPABILITY	59.0	59.7	55.5	4.1	32.8
LOUISIANA					
ESTIMATED POPULATION	1,505	1,493	1,397	130	1,770
% STD. ERROR	16.7	16.9	17.3	61.3	14.8
% WITH CAPABILITY	44.3	43.9	41.1	3.8	52.1
MAINE					
ESTIMATED POPULATION	546	472	461	0	951
% STD. ERROR	28.2	30.8	31.1	0.0	20.9
% WITH CAPABILITY	36.3	31.4	30.6	0.0	63.2
MARYLAND					
ESTIMATED POPULATION	1,908	1,927	1,782	0	1,280
% STD. ERROR	15.5	15.4	16.1	0.0	17.5
% WITH CAPABILITY	55.2	55.8	51.5	0.0	37.0
MASSACHUSETTS					
ESTIMATED POPULATION	2,282	2,216	1,946	9	1,334
% STD. ERROR	14.5	14.7	15.7	223.1	17.5
% WITH CAPABILITY	60.7	58.9	51.7	0.2	35.5
MICHIGAN					
ESTIMATED POPULATION	3,948	3,752	3,514	45	3,538
% STD. ERROR	10.8	11.1	11.5	66.0	10.9
% WITH CAPABILITY	49.9	47.4	44.4	0.6	44.7
MINNESOTA					
ESTIMATED POPULATION	1,992	1,931	1,820	8	3,363
% STD. ERROR	15.0	15.7	15.8	116.5	11.2
% WITH CAPABILITY	35.6	34.5	32.5	0.1	60.1

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
MISSISSIPPI					
ESTIMATED POPULATION	1,025	890	916	10	1,047
% STD. ERROR	20.9	22.2	21.8	251.9	19.5
% WITH CAPABILITY	48.6	42.2	43.5	0.5	49.7
MISSOURI					
ESTIMATED POPULATION	2,206	2,144	1,779	17	2,255
% STD. ERROR	14.2	14.5	15.8	141.3	13.5
% WITH CAPABILITY	46.0	44.7	37.1	0.3	47.1
MONTANA					
ESTIMATED POPULATION	615	585	536	0	1,298
% STD. ERROR	27.3	27.9	29.1	0.0	18.4
% WITH CAPABILITY	31.6	30.1	27.6	0.0	66.8
NEBRASKA					
ESTIMATED POPULATION	998	969	911	1	1,104
% STD. ERROR	21.8	22.0	23.0	257.9	18.9
% WITH CAPABILITY	46.7	45.3	42.6	0.1	51.6
NEVADA					
ESTIMATED POPULATION	1,095	1,200	928	1	1,141
% STD. ERROR	19.2	18.6	20.9	180.2	19.6
% WITH CAPABILITY	46.3	50.7	39.2	0.1	48.2
NEW HAMPSHIRE					
ESTIMATED POPULATION	533	456	449	7	909
% STD. ERROR	28.5	30.5	31.1	110.9	20.7
% WITH CAPABILITY	36.6	31.3	30.8	0.5	62.3
NEW JERSEY					
ESTIMATED POPULATION	2,863	2,574	2,664	46	1,403
% STD. ERROR	12.5	13.0	12.9	77.2	16.6
% WITH CAPABILITY	64.9	58.3	60.4	1.0	31.8
NEW MEXICO					
ESTIMATED POPULATION	1,242	1,144	1,113	47	1,267
% STD. ERROR	19.3	20.2	20.4	99.2	18.4
% WITH CAPABILITY	47.8	44.0	42.8	1.8	48.8

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
NEW YORK					
ESTIMATED POPULATION	3,298	3,382	3,173	0	3,537
% STD. ERROR	11.6	11.4	11.8	0.0	10.4
% WITH CAPABILITY	46.9	48.1	45.1	0.0	50.3
NORTH CAROLINA					
ESTIMATED POPULATION	2,836	2,810	2,705	101	2,078
% STD. ERROR	12.5	12.6	12.8	58.7	14.1
% WITH CAPABILITY	54.7	54.2	52.2	2.0	40.1
NORTH DAKOTA					
ESTIMATED POPULATION	463	404	264	0	1,068
% STD. ERROR	32.0	34.3	41.2	0.0	19.5
% WITH CAPABILITY	28.3	24.7	16.1	0.0	65.2
OHIO					
ESTIMATED POPULATION	4,617	4,612	4,277	67	3,354
% STD. ERROR	9.7	9.7	10.1	76.0	10.8
% WITH CAPABILITY	55.3	55.3	51.3	0.8	40.2
OKLAHOMA					
ESTIMATED POPULATION	2,281	2,279	2,134	80	2,338
% STD. ERROR	13.9	14.1	14.5	59.7	13.3
% WITH CAPABILITY	46.8	46.7	43.8	1.6	47.9
OREGON					
ESTIMATED POPULATION	2,304	2,215	2,106	0	2,307
% STD. ERROR	14.0	14.4	14.7	0.0	13.3
% WITH CAPABILITY	48.2	46.3	44.1	0.0	48.3
PENNSYLVANIA					
ESTIMATED POPULATION	3,642	3,744	3,577	151	2,790
% STD. ERROR	11.1	11.0	11.2	51.5	11.7
% WITH CAPABILITY	53.3	54.8	52.3	2.2	40.8
RHODE ISLAND					
ESTIMATED POPULATION	352	336	363	4	124
% STD. ERROR	37.2	37.6	36.7	358.6	58.5
% WITH CAPABILITY	66.9	63.9	69.0	0.7	23.5

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO PAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
SOUTH CAROLINA					
ESTIMATED POPULATION	1,190	1,275	1,041	26	908
% STD. ERROR	19.8	19.3	21.2	130.6	21.1
% WITH CAPABILITY	54.0	57.9	47.2	1.2	41.2
SOUTH DAKOTA					
ESTIMATED POPULATION	453	521	393	1	785
% STD. ERROR	32.9	30.9	34.8	416.8	23.0
% WITH CAPABILITY	34.5	39.7	29.9	0.1	59.7
TENNESSEE					
ESTIMATED POPULATION	1,827	1,712	1,598	0	1,244
% STD. ERROR	15.6	16.1	16.7	0.0	18.5
% WITH CAPABILITY	57.6	53.9	50.4	0.0	39.2
TEXAS					
ESTIMATED POPULATION	10,766	10,132	9,884	280	8,265
% STD. ERROR	6.3	6.5	6.6	41.8	6.7
% WITH CAPABILITY	55.1	51.8	50.5	1.4	42.3
UTAH					
ESTIMATED POPULATION	711	595	577	0	565
% STD. ERROR	24.6	26.2	26.9	0.0	28.7
% WITH CAPABILITY	55.7	46.6	45.2	0.0	44.2
VERMONT					
ESTIMATED POPULATION	329	281	256	0	338
% STD. ERROR	37.4	41.0	42.2	0.0	36.9
% WITH CAPABILITY	49.4	42.1	38.4	0.0	50.6
VIRGINIA					
ESTIMATED POPULATION	2,150	1,985	1,914	17	1,548
% STD. ERROR	14.4	15.0	15.2	147.2	16.2
% WITH CAPABILITY	57.6	53.1	51.2	0.5	41.4
WASHINGTON					
ESTIMATED POPULATION	3,746	3,325	3,027	40	2,989
% STD. ERROR	10.9	11.6	12.2	99.6	11.3
% WITH CAPABILITY	52.6	46.7	42.5	0.6	42.0

7.8 1988 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	PRECISION APPROACH EQUIPMENT				NO FAR
	LOCAL	MARKER BEACON	GLIDE SLOPE	MLS	
WEST VIRGINIA					
ESTIMATED POPULATION	606	616	589	0	568
% STD. ERROR	27.2	26.9	27.3	0.0	27.9
% WITH CAPABILITY	48.6	49.4	47.2	0.0	45.6
WISCONSIN					
ESTIMATED POPULATION	2,056	1,907	1,759	37	2,815
% STD. ERROR	15.0	15.5	16.2	113.1	12.0
% WITH CAPABILITY	41.7	38.7	35.7	0.7	57.1
WYOMING					
ESTIMATED POPULATION	363	467	421	0	428
% STD. ERROR	35.1	31.7	33.0	0.0	31.9
% WITH CAPABILITY	40.3	51.8	46.7	0.0	47.5
PUERTO RICO					
ESTIMATED POPULATION	59	61	57	3	26
% STD. ERROR	84.1	84.6	85.3	455.2	136.9
% WITH CAPABILITY	66.5	67.9	64.2	2.9	29.0
OTHER U.S. TERRITORIES					
ESTIMATED POPULATION	68	72	63	3	38
% STD. ERROR	76.0	74.7	78.2	438.3	111.9
% WITH CAPABILITY	62.0	65.5	57.8	2.6	34.5
FOREIGN					
ESTIMATED POPULATION	0	0	0	0	0
% STD. ERROR	0.0	0.0	0.0	0.0	0.0
% WITH CAPABILITY	0.0	0.0	0.0	0.0	0.0
TOTAL					
ESTIMATED POPULATION	126,573	122,114	115,380	2,269	122,406
% STD. ERROR	1.0	0.9	1.0	13.1	0.9
% WITH CAPABILITY	48.8	47.1	44.5	0.9	47.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.9 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY AIRCRAFT TYPE

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LONG RANGE NAVIGATION EQUIPMENT

VOR NAVIGATION EQUIPMENT

AIRCRAFT TYPE	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	-----LORAN----- ENR IFR	TRM IFR	OMEGA	OTHER LENAV
FIXED WING											
FIXED WING - PISTON											
1 ENG: 1-3 SEATS											
ESTIMATED POPULATION	23,019	20,982	9,249	7,708	2,594	971	9,607	703	624	541	559
% STD. ERROR	3.4	3.8	6.1	6.9	12.9	20.9	6.3	24.9	26.9	29.6	28.7
% WITH CAPABILITY	27.2	24.8	10.9	9.1	3.1	1.1	11.4	0.8	0.7	0.6	0.7
1 ENG: 4+ SEATS											
ESTIMATED POPULATION	37,753	68,850	86,446	80,891	47,945	12,455	37,003	5,233	3,162	841	631
% STD. ERROR	2.9	1.7	1.1	1.2	2.2	5.5	3.0	9.4	12.4	24.0	28.1
% WITH CAPABILITY	31.9	58.2	73.0	68.3	40.5	10.5	31.3	4.4	2.7	0.7	0.5
1 ENGINE: TOTAL											
ESTIMATED POPULATION	60,772	89,832	95,695	88,599	50,539	13,426	46,610	5,936	3,786	1,382	1,190
% STD. ERROR	2.2	1.5	1.1	1.3	2.2	5.4	2.7	8.8	11.3	18.6	20.1
% WITH CAPABILITY	29.9	44.3	47.2	43.7	24.9	6.6	23.0	2.9	1.9	0.7	0.6
2 ENG: 1-6 SEATS											
ESTIMATED POPULATION	3,217	12,694	15,562	14,907	13,931	6,316	6,226	2,017	860	220	149
% STD. ERROR	9.8	2.8	1.5	1.8	2.2	5.7	6.3	12.9	21.0	46.1	57.1
% WITH CAPABILITY	18.4	72.5	88.9	85.1	79.6	36.1	35.6	11.5	4.9	1.3	0.8
2 ENG: 7+ SEATS											
ESTIMATED POPULATION	1,675	5,658	7,229	7,282	7,014	4,030	3,502	728	303	129	115
% STD. ERROR	16.5	5.6	3.1	2.8	2.7	7.5	9.3	23.9	35.6	28.2	27.7
% WITH CAPABILITY	19.0	64.3	82.1	82.7	79.6	45.8	39.8	8.3	3.4	1.5	1.3
2 ENGINE: TOTAL											
ESTIMATED POPULATION	4,892	18,352	22,790	22,189	20,945	10,346	9,729	2,745	1,163	349	263
% STD. ERROR	8.6	2.6	1.4	1.5	1.7	4.5	5.2	11.4	18.1	30.9	34.4
% WITH CAPABILITY	18.6	69.7	86.6	84.3	79.6	39.3	37.0	10.4	4.4	1.3	1.0
PISTON: OTHER											
ESTIMATED POPULATION	35	54	55	48	41	4	14	0	9	9	0
% STD. ERROR	51.8	37.6	36.9	40.7	44.7	174.8	62.2	0.0	84.7	84.7	0.0
% WITH CAPABILITY	19.1	29.8	30.6	26.8	22.9	2.3	7.7	0.0	4.8	4.8	0.0
PISTON: TOTAL											
ESTIMATED POPULATION	65,699	108,237	118,540	110,836	71,525	23,777	56,353	8,681	4,957	1,739	1,453
% STD. ERROR	2.1	1.4	1.0	1.1	1.6	3.6	2.4	7.0	9.6	16.1	17.6
% WITH CAPABILITY	28.6	47.2	51.7	48.3	31.2	10.4	24.6	3.8	2.2	0.8	0.6

7.9 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY AIRCRAFT TYPE

AIRCRAFT TYPE	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
FIXED WING					
FIXED WING - PISTON					
1 ENG: 1-3 SEATS					
ESTIMATED POPULATION	598	519	551		39,112
% STD. ERROR	27.8	29.9	28.3		1.9
% WITH CAPABILITY	0.7	0.6	0.7		46.3
1 ENG: 4+ SEATS					
ESTIMATED POPULATION	2,889	1,887	7,227		8,473
% STD. ERROR	12.7	15.7	7.7		6.6
% WITH CAPABILITY	2.4	1.6	6.1		7.2
1 ENGINE: TOTAL					
ESTIMATED POPULATION	3,487	2,406	7,778		47,584
% STD. ERROR	11.6	13.9	7.4		2.0
% WITH CAPABILITY	1.7	1.2	3.8		23.5
2 ENG: 1-6 SEATS					
ESTIMATED POPULATION	3,277	5,514	2,887		1,117
% STD. ERROR	9.2	5.7	10.6		17.0
% WITH CAPABILITY	18.7	31.5	16.5		6.4
2 ENG: 7+ SEATS					
ESTIMATED POPULATION	2,789	5,117	1,345		950
% STD. ERROR	9.3	5.2	18.1		17.4
% WITH CAPABILITY	31.7	58.1	15.3		10.8
2 ENGINE: TOTAL					
ESTIMATED POPULATION	6,066	10,631	4,232		2,067
% STD. ERROR	6.5	3.9	9.2		12.2
% WITH CAPABILITY	23.0	40.4	16.1		7.9
PISTON: OTHER					
ESTIMATED POPULATION	8	37	37		84
% STD. ERROR	115.2	48.5	48.5		24.4
% WITH CAPABILITY	4.2	20.6	20.6		46.2
PISTON: TOTAL					
ESTIMATED POPULATION	9,560	13,074	12,048		49,735
% STD. ERROR	5.9	4.1	5.8		1.9
% WITH CAPABILITY	4.2	5.7	5.3		21.7

7.9 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY AIRCRAFT TYPE

PAGE 3 OF 6

AIRCRAFT TYPE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	-----LORAN----- ENR IFR	TRM IFR	OMEGA LRNAV
FIXED WING - TURBOPROP										
2 ENG: 1-12 SEATS										
ESTIMATED POPULATION	752	3,658	4,268	4,300	4,290	3,365	1,596	816	388	540
% STD. ERROR	18.3	3.8	1.7	1.7	1.7	4.2	10.7	16.9	26.2	17.0
% WITH CAPABILITY	16.5	80.5	93.9	94.7	94.4	74.1	35.1	18.0	8.5	11.9
2 ENG: 13+ SEATS										
ESTIMATED POPULATION	133	694	842	910	930	304	104	172	83	127
% STD. ERROR	26.1	7.8	5.2	3.9	3.3	14.2	31.0	23.0	29.9	29.2
% WITH CAPABILITY	13.2	68.7	83.4	90.1	92.1	30.1	10.3	17.1	8.2	12.6
2 ENGINE: TOTAL										
ESTIMATED POPULATION	885	4,351	5,110	5,210	5,220	3,668	1,700	988	471	667
% STD. ERROR	16.0	3.4	1.7	1.5	1.5	4.0	10.2	14.5	22.2	14.8
% WITH CAPABILITY	15.9	78.4	92.0	93.8	94.0	66.1	30.6	17.8	8.5	12.0
TURBOPROP: OTHER										
ESTIMATED POPULATION	25	102	79	82	74	16	74	11	0	4
% STD. ERROR	48.8	18.8	20.4	20.3	20.9	77.5	26.0	90.7	0.0	149.0
% WITH CAPABILITY	11.0	44.3	34.3	35.8	32.1	6.9	32.3	5.0	0.0	1.9
TURBOPROP: TOTAL										
ESTIMATED POPULATION	910	4,453	5,189	5,292	5,294	3,684	1,775	1,000	471	672
% STD. ERROR	15.6	3.4	1.7	1.5	1.5	4.0	9.8	14.4	22.2	14.8
% WITH CAPABILITY	15.7	77.0	89.7	91.5	91.5	63.7	30.7	17.3	8.1	11.6
FIXED WING - TURBOJET										
2 ENGINE: TOTAL										
ESTIMATED POPULATION	440	3,120	3,643	3,636	3,641	2,019	608	942	464	2,082
% STD. ERROR	20.5	3.8	2.7	2.7	2.7	6.8	16.2	12.6	19.6	6.1
% WITH CAPABILITY	10.8	76.8	89.7	89.5	89.6	49.7	15.0	23.2	11.4	51.3
TURBOJET: OTHER										
ESTIMATED POPULATION	38	358	319	336	375	157	30	103	52	235
% STD. ERROR	38.5	6.0	7.0	6.6	5.5	15.1	44.9	19.5	32.3	9.9
% WITH CAPABILITY	7.6	72.5	64.5	68.1	75.9	31.8	6.1	20.8	10.6	47.6
TURBOJET: TOTAL										
ESTIMATED POPULATION	478	3,478	3,961	3,972	4,016	2,176	638	1,045	517	2,317
% STD. ERROR	19.2	3.5	2.5	2.5	2.5	6.4	15.6	11.5	17.9	5.6
% WITH CAPABILITY	10.5	76.3	87.0	87.2	88.2	47.8	14.0	22.9	11.3	50.9

7.9 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY AIRCRAFT TYPE

AIRCRAFT TYPE	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
FIXED WING - TURBOPROP					
2 ENG: 1-12 SEATS					
ESTIMATED POPULATION	3,988	4,127	953		186
% STD. ERROR	2.6	2.2	15.3		35.3
% WITH CAPABILITY	87.8	90.9	21.0		4.1
2 ENG: 13+ SEATS					
ESTIMATED POPULATION	539	819	127		50
% STD. ERROR	9.8	5.7	27.0		48.3
% WITH CAPABILITY	53.4	81.0	12.6		4.9
2 ENGINE: TOTAL					
ESTIMATED POPULATION	4,527	4,946	1,080		236
% STD. ERROR	2.5	2.1	13.8		29.7
% WITH CAPABILITY	81.5	89.1	19.4		4.2
TURBOPROP: OTHER					
ESTIMATED POPULATION	55	61	7		93
% STD. ERROR	32.9	21.1	118.0		18.6
% WITH CAPABILITY	24.0	26.7	2.9		40.6
TURBOPROP: TOTAL					
ESTIMATED POPULATION	4,583	5,007	1,086		329
% STD. ERROR	2.5	2.1	13.8		21.9
% WITH CAPABILITY	79.2	86.6	18.8		5.7
FIXED WING - TURBOJET					
2 ENGINE: TOTAL					
ESTIMATED POPULATION	3,400	3,523	825		284
% STD. ERROR	3.1	3.0	14.3		29.7
% WITH CAPABILITY	83.7	86.7	20.3		7.0
TURBOJET: OTHER					
ESTIMATED POPULATION	304	304	81		82
% STD. ERROR	7.3	7.4	25.8		19.8
% WITH CAPABILITY	61.6	61.6	16.3		16.7
TURBOJET: TOTAL					
ESTIMATED POPULATION	3,704	3,827	906		367
% STD. ERROR	2.9	2.8	13.2		23.4
% WITH CAPABILITY	81.3	84.0	19.9		8.0

7.9 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY AIRCRAFT TYPE

PAGE 5 OF 6

AIRCRAFT TYPE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	LORAN----- TRM IFR	OMEGA LRNAV
FIXED WING: TOTAL	67,087	116,168	127,691	120,101	80,835	29,637	58,765	10,726	5,944	4,729
ESTIMATED POPULATION	2.1	1.3	0.9	1.0	1.4	3.0	2.3	5.9	8.3	6.8
% STD. ERROR	28.0	48.5	53.3	50.1	33.7	12.4	24.5	4.5	2.5	2.0
% WITH CAPABILITY										
ROTORCRAFT										
PISTON										
ESTIMATED POPULATION	249	454	27	153	29	12	591	7	5	5
% STD. ERROR	26.0	26.1	87.8	34.4	84.8	119.6	20.7	157.4	216.3	216.3
% WITH CAPABILITY	4.7	8.5	0.5	2.9	0.5	0.2	11.1	0.1	0.1	0.1
TURBINE										
ESTIMATED POPULATION	669	2,188	1,148	2,192	1,342	780	2,470	219	166	90
% STD. ERROR	19.5	7.6	11.7	7.7	11.1	16.6	6.6	21.0	27.7	48.2
% WITH CAPABILITY	15.1	49.3	25.9	49.4	30.3	17.6	55.7	4.9	3.8	2.0
ROTORCRAFT: TOTAL										
ESTIMATED POPULATION	918	2,642	1,176	2,345	1,371	792	3,061	226	171	95
% STD. ERROR	15.9	7.7	11.6	7.6	11.0	16.4	6.6	20.9	27.6	47.0
% WITH CAPABILITY	9.4	27.0	12.0	24.0	14.0	8.1	31.3	2.3	1.8	1.0
OTHER										
ESTIMATED POPULATION	69	164	76	55	8	7	96	4	0	0
% STD. ERROR	71.1	38.4	72.3	97.6	163.1	193.9	56.2	62.7	0.0	0.0
% WITH CAPABILITY	0.7	1.7	0.8	0.6	0.1	0.1	1.0	0.0	0.0	0.0
TOTAL	68,073	118,974	128,943	122,501	82,214	30,435	61,922	10,955	6,116	4,824
ESTIMATED POPULATION	2.1	1.3	0.9	1.0	1.4	2.9	2.2	5.8	8.1	6.8
% STD. ERROR	26.2	45.9	49.7	47.2	31.7	11.7	23.9	4.2	2.4	1.9
% WITH CAPABILITY										

7.9 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY AIRCRAFT TYPE

AIRCRAFT TYPE	OTHER NAVIGATION EQUIPMENT			NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	
FIXED WING: TOTAL	17,847	21,908	14,040	50,430
ESTIMATED POPULATION	3.3	2.5	5.1	1.9
% STD. ERROR	7.4	9.1	5.9	21.0
% WITH CAPABILITY				
ROTORCRAFT				
PISTON	9	5	5	4,346
ESTIMATED POPULATION	132.7	216.3	216.3	3.4
% STD. ERROR	0.2	0.1	0.1	81.5
% WITH CAPABILITY				
TURBINE	1,155	441	223	808
ESTIMATED POPULATION	11.6	14.8	32.6	14.0
% STD. ERROR	26.0	9.9	5.0	18.2
% WITH CAPABILITY				
ROTORCRAFT: TOTAL	1,164	446	228	5,154
ESTIMATED POPULATION	11.6	14.8	32.3	3.6
% STD. ERROR	11.9	4.6	2.3	52.8
% WITH CAPABILITY				
OTHER	51	0	0	9,622
ESTIMATED POPULATION	105.5	0.0	0.0	1.0
% STD. ERROR	0.5	0.0	0.0	97.0
% WITH CAPABILITY				
TOTAL	19,062	22,353	14,268	65,207
ESTIMATED POPULATION	3.2	2.5	5.1	1.5
% STD. ERROR	7.3	8.6	5.5	25.1
% WITH CAPABILITY				

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.10 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY PRIMARY USE

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PRIMARY USE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	TRM IFR	OMEGA LRNAV
EXECUTIVE										
ESTIMATED POPULATION	1,395	8,540	9,786	10,110	9,643	6,283	3,453	2,203	1,080	2,567
% STD. ERROR	15.2	4.6	4.2	4.1	4.1	5.6	9.3	10.3	14.9	5.9
% WITH CAPABILITY	12.8	78.5	89.9	92.9	88.6	57.7	31.7	20.2	9.9	23.6
BUSINESS										
ESTIMATED POPULATION	8,996	22,795	28,985	28,490	22,783	10,485	1,286	2,673	1,195	452
% STD. ERROR	7.1	4.0	3.4	3.4	3.8	6.0	5.6	13.1	20.0	28.1
% WITH CAPABILITY	25.8	65.3	83.0	81.6	65.2	30.0	38.1	7.7	3.4	1.3
PERSONAL										
ESTIMATED POPULATION	39,287	60,182	65,117	58,199	33,919	8,205	34,425	3,532	1,820	436
% STD. ERROR	3.0	2.2	2.0	2.2	3.2	7.4	3.3	11.2	15.8	32.4
% WITH CAPABILITY	32.1	49.1	53.1	47.5	27.7	6.7	28.1	2.9	1.5	0.4
INSTRUCTIONAL										
ESTIMATED POPULATION	5,595	8,698	7,154	7,299	3,828	610	1,798	406	398	254
% STD. ERROR	9.0	7.2	8.0	8.0	11.0	29.4	16.0	35.7	36.2	46.2
% WITH CAPABILITY	33.6	52.2	42.9	43.8	23.0	3.7	10.8	2.4	2.4	1.5
AERIAL APPLICATION										
ESTIMATED POPULATION	266	703	489	603	392	43	678	96	48	79
% STD. ERROR	41.0	21.5	28.7	25.9	32.2	93.2	22.1	74.3	106.8	78.6
% WITH CAPABILITY	3.8	10.0	6.9	8.6	5.6	0.6	9.6	1.4	0.7	1.1
AERIAL OBSERVATION										
ESTIMATED POPULATION	1,002	2,245	1,887	2,162	1,162	469	1,619	105	198	38
% STD. ERROR	21.8	13.8	15.1	14.1	18.5	28.9	16.1	64.2	51.2	106.3
% WITH CAPABILITY	21.1	47.2	39.7	45.5	24.4	9.9	34.0	2.2	4.2	0.8
OTHER WORK										
ESTIMATED POPULATION	383	607	616	574	328	116	337	65	2	2
% STD. ERROR	36.1	27.6	26.9	27.3	35.7	55.2	31.7	86.3	251.7	159.1
% WITH CAPABILITY	20.8	33.0	33.5	31.2	17.8	6.3	18.3	3.6	0.1	0.2
COMMUTER AIR CARRIER										
ESTIMATED POPULATION	211	665	756	764	732	187	234	47	33	18
% STD. ERROR	35.4	19.4	17.3	16.6	17.5	41.7	36.9	64.2	84.1	71.3
% WITH CAPABILITY	21.8	68.7	78.2	79.0	75.7	19.3	24.2	4.8	3.4	1.9

7.10 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY PRIMARY USE

PAGE 2 OF 4

PRIMARY USE	EQUIPMENT				NO NAV EQ
	OTHER	NAVIGATION	WEATHER RADAR	THUNDER STM DET	
	RADAR ALTIM				
EXECUTIVE					
ESTIMATED POPULATION	7,411	7,802		2,133	337
% STD. ERROR	3.8	4.0		11.2	27.6
% WITH CAPABILITY	68.1	71.7		19.6	3.1
BUSINESS					
ESTIMATED POPULATION	4,733	6,381		4,757	1,339
% STD. ERROR	8.6	7.3		9.4	17.3
% WITH CAPABILITY	13.6	18.3		13.6	3.8
PERSONAL					
ESTIMATED POPULATION	2,570	2,483		4,662	20,648
% STD. ERROR	12.7	13.2		9.8	3.2
% WITH CAPABILITY	2.1	2.0		3.8	16.8
INSTRUCTIONAL					
ESTIMATED POPULATION	289	499		401	1,946
% STD. ERROR	45.1	30.0		37.4	14.2
% WITH CAPABILITY	1.7	3.0		2.4	11.7
AERIAL APPLICATION					
ESTIMATED POPULATION	95	89		129	6,020
% STD. ERROR	45.3	48.6		62.7	3.7
% WITH CAPABILITY	1.4	1.3		1.8	85.5
AERIAL OBSERVATION					
ESTIMATED POPULATION	133	154		115	1,320
% STD. ERROR	39.3	38.9		48.0	17.2
% WITH CAPABILITY	2.8	3.2		2.4	27.8
OTHER WORK					
ESTIMATED POPULATION	156	88		46	682
% STD. ERROR	46.1	46.8		109.7	22.5
% WITH CAPABILITY	8.5	4.8		2.5	37.1
COMPUTER AIR CARRIER					
ESTIMATED POPULATION	366	585		85	37
% STD. ERROR	23.3	19.6		33.8	107.0
% WITH CAPABILITY	37.8	60.4		8.8	3.8

7.10 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY PRIMARY USE

PAGE 3 OF 4

PRIMARY USE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	TRM IFR	OMEGA LRNAV
AIR TAXI										
ESTIMATED POPULATION	1,515	4,225	4,620	5,361	4,221	2,095	2,247	477	163	231
% STD. ERROR	16.3	8.9	8.5	7.8	8.9	13.3	12.1	25.3	44.7	29.0
% WITH CAPABILITY	23.3	64.9	70.9	82.3	64.8	32.2	34.5	7.3	2.5	3.5
OTHER										
ESTIMATED POPULATION	354	1,991	1,849	1,694	1,096	433	1,029	256	69	71
% STD. ERROR	27.7	13.1	13.5	13.8	16.0	24.8	17.9	32.9	44.9	30.5
% WITH CAPABILITY	8.7	48.8	45.3	41.5	26.9	10.6	25.2	6.3	1.7	1.7
INACTIVE										
ESTIMATED POPULATION	9,179	8,460	7,732	7,315	4,091	1,486	3,048	791	736	428
% STD. ERROR	5.5	5.9	5.1	5.3	7.7	14.0	10.8	19.0	21.5	27.2
% WITH CAPABILITY	18.7	17.2	15.7	14.9	8.3	3.0	6.2	1.6	1.5	0.9
TOTAL										
ESTIMATED POPULATION	68,073	118,974	128,943	122,501	82,214	30,435	61,922	10,955	6,116	4,824
% STD. ERROR	2.1	1.3	0.9	1.0	1.4	2.9	2.2	5.8	8.1	6.8
% WITH CAPABILITY	26.2	45.9	49.7	47.2	31.7	11.7	23.9	4.2	2.4	1.9

7.10 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY PRIMARY USE

PRIMARY USE	NAVIGATION EQUIPMENT				NO NAV EQ
	OTHER RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
AIR TAXI					
ESTIMATED POPULATION	1,585	2,659	827		352
% STD. ERROR	14.2	10.5	22.2		28.5
% WITH CAPABILITY	24.3	40.8	12.7		5.4
OTHER					
ESTIMATED POPULATION	384	349	192		1,463
% STD. ERROR	21.1	21.3	38.8		15.1
% WITH CAPABILITY	9.4	8.6	4.7		35.8
INACTIVE					
ESTIMATED POPULATION	1,201	1,199	837		30,777
% STD. ERROR	12.0	10.9	20.5		1.9
% WITH CAPABILITY	2.4	2.4	1.7		62.5
TOTAL					
ESTIMATED POPULATION	19,062	22,353	14,268		65,207
% STD. ERROR	3.2	2.5	5.1		1.5
% WITH CAPABILITY	7.3	8.6	5.5		25.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.11 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 4

REGION	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	-----LORAN----- ENR IFR TRM IFR	OMEGA	OTHER LRNAV
ALASKAN										
ESTIMATED POPULATION	2,899	2,960	2,096	3,439	1,031	80	1,887	31		12
% STD. ERROR	11.8	11.6	14.1	10.3	20.3	63.1	14.2	76.9	11	176.1
% WITH CAPABILITY	35.5	36.3	25.7	42.1	12.6	1.0	23.1	0.4	142.8	0.1
CENTRAL										
ESTIMATED POPULATION	3,894	5,836	7,000	6,388	4,045	1,619	2,695	805	438	296
% STD. ERROR	10.8	8.6	8.0	8.3	10.2	15.8	13.2	22.0	31.8	28.4
% WITH CAPABILITY	28.4	42.6	51.1	46.7	29.5	11.8	19.7	5.9	3.2	2.2
EASTERN										
ESTIMATED POPULATION	7,372	14,348	15,903	14,355	10,016	3,810	7,255	1,367	630	771
% STD. ERROR	7.7	5.4	5.1	5.3	6.3	10.1	7.6	16.6	24.6	16.8
% WITH CAPABILITY	26.3	51.2	56.7	51.2	35.7	13.6	25.9	4.9	2.2	2.8
GREAT LAKES										
ESTIMATED POPULATION	10,928	20,818	21,986	19,694	13,345	4,804	9,497	2,424	1,198	705
% STD. ERROR	6.3	4.4	4.3	4.5	5.5	9.0	6.8	12.8	19.4	16.5
% WITH CAPABILITY	25.7	48.9	51.7	46.3	31.4	11.3	22.3	5.7	2.8	1.7
NEW ENGLAND										
ESTIMATED POPULATION	2,866	4,770	5,015	5,201	3,071	1,062	3,267	438	287	86
% STD. ERROR	12.7	9.6	9.5	9.4	12.2	21.1	11.7	30.7	39.1	43.6
% WITH CAPABILITY	27.7	46.1	48.4	50.2	29.7	10.3	31.6	4.2	2.8	0.8
NORTHWEST MOUNTAIN										
ESTIMATED POPULATION	6,549	10,279	10,339	10,920	6,002	2,084	5,377	940	440	240
% STD. ERROR	8.4	6.4	6.5	6.3	8.5	14.3	8.9	22.6	32.2	31.5
% WITH CAPABILITY	29.1	45.7	45.9	48.5	26.7	9.3	23.9	4.2	2.0	1.1
SOUTHERN										
ESTIMATED POPULATION	10,215	20,195	22,083	21,008	14,063	5,847	13,154	2,149	942	791
% STD. ERROR	6.6	4.4	4.2	4.3	5.2	8.0	5.7	13.8	20.6	20.1
% WITH CAPABILITY	26.4	52.2	57.1	54.3	36.4	15.1	34.0	5.6	2.4	2.0

7.11 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY REGION OF BASED AIRCRAFT

REGION	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
ALASKAN					
ESTIMATED POPULATION	314	56	10		1,829
% STD. ERROR	36.1	67.1	165.9		14.6
% WITH CAPABILITY	3.8	0.7	0.1		22.4
CENTRAL					
ESTIMATED POPULATION	954	1,201	808		3,712
% STD. ERROR	17.2	15.9	24.0		9.9
% WITH CAPABILITY	7.0	8.8	5.9		27.1
EASTERN					
ESTIMATED POPULATION	2,647	3,202	2,338		5,708
% STD. ERROR	10.7	10.0	13.9		7.7
% WITH CAPABILITY	9.4	11.4	8.3		20.4
GREAT LAKES					
ESTIMATED POPULATION	2,542	3,255	2,850		9,640
% STD. ERROR	10.1	9.7	12.1		5.9
% WITH CAPABILITY	6.0	7.7	6.7		22.7
NEW ENGLAND					
ESTIMATED POPULATION	627	734	612		2,305
% STD. ERROR	23.5	23.9	27.2		13.0
% WITH CAPABILITY	6.1	7.1	5.9		22.3
NORTHWEST MOUNTAIN					
ESTIMATED POPULATION	1,121	1,167	433		5,020
% STD. ERROR	16.8	16.1	30.9		8.3
% WITH CAPABILITY	5.0	5.2	1.9		22.3
SOUTHERN					
ESTIMATED POPULATION	4,156	5,663	3,226		7,532
% STD. ERROR	8.7	7.5	11.2		6.9
% WITH CAPABILITY	10.8	14.6	8.3		19.5

7.11 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY REGION OF BASED AIRCRAFT

PAGE 3 OF 4

REGION	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT					
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	TRM IFR	OMEGA	OTHER LRNAV
SOUTHWESTERN ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	8,178	15,649	17,068	17,291	12,711	4,996	7,658	1,439	1,005	1,073	561
	7.2	5.2	4.8	4.8	5.6	9.1	7.4	16.7	20.4	17.8	25.5
	24.8	47.4	51.7	52.4	38.5	15.1	23.2	4.4	3.0	3.3	1.7
WESTERN-PACIFIC ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	12,384	20,147	23,654	20,465	15,333	4,981	9,732	851	756	619	368
	5.9	4.4	4.0	4.4	5.1	9.2	6.6	19.4	22.7	20.7	30.0
	28.5	46.4	54.4	47.1	35.3	11.5	22.4	2.0	1.7	1.4	0.8
TOTAL ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	68,073	118,974	128,943	122,501	82,214	30,435	61,922	10,955	6,116	4,824	2,522
	2.1	1.3	0.9	1.0	1.4	2.9	2.2	5.8	8.1	6.8	11.0
	26.2	45.9	49.7	47.2	31.7	11.7	23.9	4.2	2.4	1.9	1.0

7.11 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY REGION OF BASED AIRCRAFT

REGION	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
SOUTHWESTERN ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	3,238	3,890	1,729		7,913
	10.0	9.3	15.8		6.4
	9.8	11.8	5.2		24.0
WESTERN-PACIFIC ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	2,759	2,345	1,550		9,684
	10.7	10.8	15.3		5.9
	6.4	5.4	3.6		22.3
TOTAL	19,062	22,353	14,268		65,207
ESTIMATED POPULATION					
% STD. ERROR	3.2	2.5	5.1		1.5
% WITH CAPABILITY	7.3	8.6	5.5		25.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 14

STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	TRM IFR	OMEGA LRNAV
ALABAMA										
ESTIMATED POPULATION	606	1,603	1,588	1,635	1,020	472	1,074	128	60	98
% STD. ERROR	27.3	17.0	17.0	16.7	20.7	29.8	21.3	56.1	86.8	45.2
% WITH CAPABILITY	20.8	55.1	54.6	56.3	35.1	16.2	36.9	4.4	2.1	3.4
ALASKA										
ESTIMATED POPULATION	2,899	2,960	2,096	3,439	1,031	80	1,887	31	2	11
% STD. ERROR	11.8	11.6	14.1	10.3	20.3	63.1	14.2	76.9	269.9	142.8
% WITH CAPABILITY	35.5	36.3	25.7	42.1	12.6	1.0	23.1	0.4	0.0	0.1
ARIZONA										
ESTIMATED POPULATION	1,306	3,240	2,959	2,498	2,014	489	508	103	173	45
% STD. ERROR	18.3	11.7	12.3	13.2	14.8	27.8	27.9	60.4	52.6	56.1
% WITH CAPABILITY	22.0	54.5	49.8	42.0	33.9	8.2	8.5	1.7	2.9	0.8
ARKANSAS										
ESTIMATED POPULATION	641	1,019	981	1,254	746	245	555	92	54	22
% STD. ERROR	27.3	20.6	21.1	18.9	23.9	41.7	28.2	67.8	98.6	79.8
% WITH CAPABILITY	25.1	39.9	38.4	49.1	29.2	9.6	21.7	3.6	2.1	0.8
CALIFORNIA										
ESTIMATED POPULATION	10,144	15,482	19,195	16,594	12,479	4,213	8,663	643	547	534
% STD. ERROR	6.6	5.1	4.6	4.9	5.8	10.1	7.1	22.1	26.2	23.2
% WITH CAPABILITY	29.5	45.0	55.8	48.3	36.3	12.3	25.2	1.9	1.6	1.6
COLORADO										
ESTIMATED POPULATION	935	2,249	2,309	2,098	1,463	638	613	118	92	101
% STD. ERROR	22.3	14.6	14.5	15.0	18.2	26.6	26.6	58.5	65.9	49.5
% WITH CAPABILITY	21.8	52.4	53.8	48.9	34.1	14.9	14.3	2.7	2.1	2.4
CONNECTICUT										
ESTIMATED POPULATION	521	1,346	1,298	1,183	842	335	788	110	61	22
% STD. ERROR	30.2	18.2	18.9	19.9	23.8	39.4	24.2	62.3	88.1	50.7
% WITH CAPABILITY	21.4	55.3	53.3	48.6	34.6	13.8	32.3	4.5	2.5	0.9
DELAWARE										
ESTIMATED POPULATION	333	757	682	690	569	355	322	131	128	115
% STD. ERROR	37.7	23.7	24.3	24.3	25.9	33.9	36.9	58.9	61.8	57.2
% WITH CAPABILITY	28.1	63.9	57.5	58.2	48.0	29.9	27.2	11.0	10.8	9.7

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

STATE	NAVIGATION EQUIPMENT				NO NAV EQ
	OTHER RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
ALABAMA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	313 30.2 10.8	434 29.7 14.9	336 37.2 11.6	633 24.7 21.8	
ALASKA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	314 36.1 3.8	56 67.1 0.7	10 165.9 0.1	1,829 14.6 22.4	
ARIZONA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	315 31.3 5.3	275 32.5 4.6	182 44.3 3.1	1,506 15.7 25.3	
ARKANSAS ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	175 43.6 6.8	285 33.1 11.1	136 56.0 5.3	850 20.8 33.2	
CALIFORNIA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	2,268 12.1 6.6	1,870 12.6 5.4	1,312 16.7 3.8	7,269 6.8 21.1	
COLORADO ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	332 34.2 7.7	292 33.8 6.8	181 45.4 4.2	1,041 19.5 24.3	
CONNECTICUT ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	175 44.3 7.2	261 41.5 10.7	241 46.1 9.9	522 27.2 21.4	
DELAWARE ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	313 32.2 26.4	417 29.9 35.2	234 45.5 19.7	113 54.0 9.5	

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	TRM IFR	OMEGA LRNAV
DIST. OF COLUMBIA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	0 0.0 0.0	30 105.1 21.8	37 107.2 26.8	28 109.0 19.9	30 105.1 21.8	14 199.4 9.9	20 118.5 14.2	1 290.4 0.8	0 0.0 0.0	3 221.4 1.8
FLORIDA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	4,001 10.6 25.8	8,252 7.1 53.2	9,171 6.8 59.2	8,715 7.0 56.2	6,050 8.3 39.0	2,236 13.1 14.4	5,483 8.9 35.4	770 23.5 5.0	236 39.4 1.5	168 47.2 1.1
GEORGIA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	1,882 15.9 33.6	2,535 12.8 45.3	3,019 12.1 53.9	2,908 12.2 51.9	1,680 15.7 30.0	661 22.5 11.8	1,950 15.3 34.8	358 34.7 6.4	190 47.2 3.4	122 54.1 2.2
HAWAII ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	186 48.1 28.3	276 40.0 42.0	221 43.7 33.6	246 42.3 37.4	142 51.5 21.5	35 112.3 5.3	10 182.1 1.6	9 195.9 1.4	6 232.7 0.9	8 168.3 1.2
IDAHO ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	755 25.4 34.4	911 22.1 41.6	917 22.3 41.8	837 23.2 38.2	454 30.9 20.7	219 41.9 10.0	477 30.5 21.8	31 86.7 1.4	12 92.0 0.6	23 91.1 1.0
ILLINOIS ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	2,132 14.4 26.1	4,076 10.4 49.9	4,831 9.5 59.1	4,078 10.4 49.9	2,933 11.9 35.9	1,230 18.0 15.1	1,989 15.0 24.3	389 28.1 4.8	232 39.3 2.8	194 31.3 2.4
INDIANA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	1,298 18.6 28.0	2,470 13.6 53.3	2,674 13.0 57.7	2,360 13.7 50.9	1,774 15.8 38.3	598 26.9 12.9	1,082 20.9 23.4	253 40.0 5.5	113 62.9 2.4	59 45.2 1.3
IOWA ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	639 27.0 22.4	1,353 18.0 47.5	1,552 17.2 54.4	1,447 17.8 50.8	1,015 20.9 35.6	378 33.0 13.3	480 32.4 16.8	127 52.1 4.5	81 74.9 2.8	36 70.0 1.3

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
DIST. OF COLUMBIA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	15 104.7 11.0	15 104.7 11.0	0 0.0 0.0		90 78.6 65.1
FLORIDA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	1,665 14.6 10.7	2,282 13.1 14.7	1,134 18.4 7.3		2,733 12.0 17.6
GEORGIA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	575 22.9 10.3	567 21.9 10.1	378 33.4 6.7		1,092 18.1 19.5
HAWAII ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	34 81.0 5.1	27 101.7 4.0	6 253.5 0.9		186 45.2 28.3
IDAHO ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	136 48.6 6.2	98 54.1 4.5	7 151.3 0.3		543 25.5 24.8
ILLINOIS ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	652 21.0 8.0	540 22.2 6.6	779 22.9 9.5		1,786 14.0 21.9
INDIANA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	400 30.6 8.6	555 26.6 12.0	225 42.0 4.9		708 22.0 15.3
IOWA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	156 37.4 5.5	239 36.0 8.4	197 46.9 6.9		710 22.8 24.9

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	ENR IFR	TRM IFR	OMEGA LRNAV
KANSAS										
ESTIMATED POPULATION	1,232	1,600	1,952	1,790	1,261	481	849	286	199	153
% STD. ERROR	19.5	16.7	15.2	16.0	18.4	29.4	24.1	39.1	48.9	44.9
% WITH CAPABILITY	31.5	40.9	49.9	45.8	32.3	12.3	21.7	7.3	5.1	3.9
KENTUCKY										
ESTIMATED POPULATION	392	1,219	1,182	1,088	715	451	690	223	131	131
% STD. ERROR	34.7	18.9	19.0	19.9	24.0	30.5	25.7	45.2	62.1	54.4
% WITH CAPABILITY	20.6	64.1	62.1	57.2	37.5	23.7	36.2	11.7	6.9	6.9
LOUISIANA										
ESTIMATED POPULATION	673	1,443	1,510	1,888	1,206	270	1,300	189	138	72
% STD. ERROR	25.1	17.1	16.7	15.0	18.5	38.8	17.9	40.7	49.0	64.4
% WITH CAPABILITY	19.8	42.5	44.4	55.5	35.5	7.9	38.3	5.5	4.1	2.1
MAINE										
ESTIMATED POPULATION	445	457	441	527	270	75	435	61	54	3
% STD. ERROR	30.0	31.0	31.9	28.7	39.5	74.1	31.8	85.9	94.7	235.0
% WITH CAPABILITY	29.6	30.4	29.3	35.0	18.0	5.0	28.9	4.1	3.6	0.2
MARYLAND										
ESTIMATED POPULATION	943	2,049	1,974	1,849	1,315	540	1,073	90	27	17
% STD. ERROR	22.0	14.9	15.3	15.8	18.9	28.9	20.5	63.7	90.0	112.5
% WITH CAPABILITY	27.3	59.3	57.1	53.5	38.0	15.6	31.1	2.6	0.8	0.5
MASSACHUSETTS										
ESTIMATED POPULATION	1,165	1,912	2,138	2,441	1,295	432	1,321	130	59	40
% STD. ERROR	20.7	15.5	14.8	14.0	19.1	34.4	18.9	52.1	71.7	72.2
% WITH CAPABILITY	31.0	50.8	56.9	64.9	34.4	11.5	35.1	3.4	1.6	1.1
MICHIGAN										
ESTIMATED POPULATION	1,697	4,233	4,120	3,695	2,553	832	2,123	449	135	140
% STD. ERROR	16.7	10.3	10.6	11.1	13.4	22.1	14.7	30.7	66.1	33.0
% WITH CAPABILITY	21.4	53.5	52.1	46.7	32.3	10.5	26.8	5.7	1.7	1.8
MINNESOTA										
ESTIMATED POPULATION	1,501	2,522	2,352	2,078	1,262	430	1,136	171	50	24
% STD. ERROR	17.3	13.3	14.1	14.9	18.7	31.0	20.4	47.7	84.6	77.3
% WITH CAPABILITY	26.8	45.1	42.0	37.1	22.5	7.7	20.3	3.1	0.9	0.4

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

STATE	OTHER NAVIGATION EQUIPMENT			NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	
KANSAS				
ESTIMATED POPULATION	331	486	267	1,123
% STD. ERROR	29.1	25.9	44.4	18.0
% WITH CAPABILITY	8.5	12.4	6.8	28.7
KENTUCKY				
ESTIMATED POPULATION	299	456	263	359
% STD. ERROR	30.3	27.2	40.7	33.3
% WITH CAPABILITY	15.7	23.9	12.8	18.9
LOUISIANA				
ESTIMATED POPULATION	276	418	95	802
% STD. ERROR	30.2	27.3	70.8	21.4
% WITH CAPABILITY	8.1	12.3	2.8	23.6
MAINE				
ESTIMATED POPULATION	61	78	6	504
% STD. ERROR	72.5	75.7	195.1	28.2
% WITH CAPABILITY	4.1	5.2	0.4	33.5
MARYLAND				
ESTIMATED POPULATION	178	298	350	518
% STD. ERROR	39.8	40.0	37.3	25.8
% WITH CAPABILITY	5.1	8.6	10.1	15.0
MASSACHUSETTS				
ESTIMATED POPULATION	288	224	247	544
% STD. ERROR	36.7	45.6	41.7	25.1
% WITH CAPABILITY	7.7	6.0	6.6	14.5
MICHIGAN				
ESTIMATED POPULATION	359	587	482	1,575
% STD. ERROR	22.3	24.8	31.1	15.6
% WITH CAPABILITY	4.5	7.4	6.1	19.9
MINNESOTA				
ESTIMATED POPULATION	130	202	268	1,613
% STD. ERROR	43.6	38.3	38.7	15.8
% WITH CAPABILITY	2.3	3.6	4.8	28.8

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT						
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	-----LORAN----- ENR IFR	TRM IFR	OMEGA	OTHER LRNAV	
MISSISSIPPI	ESTIMATED POPULATION											
	287	905	966	931	723	278	452	57	25	16	4	
	40.4	22.0	21.5	21.8	24.4	37.9	32.1	78.6	100.1	104.0	129.4	
% WITH CAPABILITY												
	13.6	42.9	45.8	44.2	34.3	13.2	21.4	2.7	1.2	0.7	0.2	
MISSOURI	ESTIMATED POPULATION											
	1,441	1,956	2,441	2,157	1,092	523	1,069	341	148	69	37	
	17.8	15.0	13.7	14.5	19.8	27.6	20.2	33.7	52.0	50.2	80.3	
% WITH CAPABILITY												
	30.1	40.8	50.9	45.0	22.8	10.9	22.3	7.1	3.1	1.4	0.8	
MONTANA	ESTIMATED POPULATION											
	707	506	614	782	359	64	264	50	35	10	0	
	26.1	29.5	27.5	24.5	35.3	71.9	43.8	86.2	105.2	95.5	0.0	
% WITH CAPABILITY												
	36.4	26.0	31.6	40.2	18.5	3.3	13.6	2.5	1.8	0.5	0.0	
NEBRASKA	ESTIMATED POPULATION											
	583	928	1,055	993	677	237	298	51	10	38	12	
	27.5	22.5	21.3	21.6	26.2	42.8	41.8	68.5	168.0	63.1	103.1	
% WITH CAPABILITY												
	27.2	43.4	49.3	46.5	31.7	11.1	13.9	2.4	0.5	1.8	0.6	
NEVADA	ESTIMATED POPULATION											
	702	1,106	1,215	1,042	645	236	528	90	25	24	4	
	25.6	19.3	18.6	19.9	24.5	41.2	29.4	57.6	94.5	74.3	103.1	
% WITH CAPABILITY												
	29.7	46.7	51.3	44.0	27.2	10.0	22.3	3.8	1.1	1.0	0.2	
NEW HAMPSHIRE	ESTIMATED POPULATION											
	393	473	506	430	276	128	369	123	105	17	18	
	32.7	29.1	29.9	31.1	37.6	51.5	30.4	60.9	68.0	93.8	65.2	
% WITH CAPABILITY												
	26.9	32.4	34.7	29.5	18.9	8.8	25.3	8.4	7.2	1.1	1.2	
NEW JERSEY	ESTIMATED POPULATION											
	988	2,654	2,960	2,365	1,852	541	1,311	176	46	130	101	
	21.3	12.9	12.2	13.7	15.3	26.2	18.0	46.0	97.5	35.9	44.1	
% WITH CAPABILITY												
	22.4	60.1	67.1	53.6	42.0	12.3	29.7	4.0	1.0	2.9	2.3	
NEW MEXICO	ESTIMATED POPULATION											
	432	1,231	1,307	978	739	298	465	165	82	46	43	
	31.7	19.4	18.8	21.3	24.7	37.0	31.7	52.3	71.7	101.9	108.3	
% WITH CAPABILITY												
	16.6	47.4	50.3	37.6	28.4	11.5	17.9	6.3	3.1	1.8	1.7	

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

STATE	OTHER NAVIGATION EQUIPMENT			NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	
MISSISSIPPI				
ESTIMATED POPULATION	210	280	142	790
% STD. ERROR	41.7	34.0	55.3	22.0
% WITH CAPABILITY	10.0	13.3	6.7	37.5
MISSOURI				
ESTIMATED POPULATION	346	303	258	1,218
% STD. ERROR	30.3	30.4	41.6	18.3
% WITH CAPABILITY	7.2	6.3	5.4	25.4
MONTANA				
ESTIMATED POPULATION	29	42	14	586
% STD. ERROR	66.0	66.1	116.6	25.8
% WITH CAPABILITY	1.5	2.2	0.7	30.1
NEBRASKA				
ESTIMATED POPULATION	121	173	86	662
% STD. ERROR	50.2	42.8	71.7	23.4
% WITH CAPABILITY	5.7	8.1	4.0	31.0
NEVADA				
ESTIMATED POPULATION	129	158	39	707
% STD. ERROR	48.3	40.4	89.9	24.7
% WITH CAPABILITY	5.4	6.7	1.7	29.9
NEW HAMPSHIRE				
ESTIMATED POPULATION	59	102	48	481
% STD. ERROR	59.6	56.7	77.5	29.7
% WITH CAPABILITY	4.1	7.0	3.3	33.0
NEW JERSEY				
ESTIMATED POPULATION	456	427	290	780
% STD. ERROR	25.3	25.0	37.7	21.2
% WITH CAPABILITY	10.3	9.7	6.6	17.7
NEW MEXICO				
ESTIMATED POPULATION	141	144	64	819
% STD. ERROR	51.8	50.1	78.2	22.5
% WITH CAPABILITY	5.4	5.6	2.5	31.5

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VFR ONLY	LORAN ENR IFR	TRM IFR	OMEGA LRNAV
NEW YORK										
ESTIMATED POPULATION	1,939	3,151	3,654	3,355	2,191	727	1,445	355	137	195
% STD. ERROR	15.1	11.8	11.0	11.5	13.9	22.6	17.3	32.0	53.9	33.0
% WITH CAPABILITY	27.6	44.8	52.0	47.7	31.2	10.3	20.6	5.1	2.0	2.8
NORTH CAROLINA										
ESTIMATED POPULATION	1,415	2,899	3,117	2,909	2,122	977	1,763	260	120	169
% STD. ERROR	18.5	12.3	12.0	12.4	14.6	20.8	16.0	35.5	46.6	44.1
% WITH CAPABILITY	27.3	56.0	60.2	56.2	41.0	18.9	34.0	5.0	2.3	3.3
NORTH DAKOTA										
ESTIMATED POPULATION	509	458	348	370	247	96	42	39	24	24
% STD. ERROR	30.5	32.2	37.1	35.7	42.9	70.2	104.1	111.8	155.2	155.2
% WITH CAPABILITY	31.1	27.9	21.2	22.6	15.1	5.9	2.6	2.4	1.5	1.5
OHIO										
ESTIMATED POPULATION	2,230	4,451	5,011	4,583	3,063	1,288	2,013	789	411	175
% STD. ERROR	14.1	9.9	9.4	9.7	11.8	17.6	14.7	23.3	33.3	36.3
% WITH CAPABILITY	26.7	53.4	60.1	54.9	36.7	15.4	24.1	9.5	4.9	2.1
OKLAHOMA										
ESTIMATED POPULATION	1,588	2,083	2,554	2,394	1,763	799	953	164	84	77
% STD. ERROR	17.1	14.5	13.4	13.9	15.9	24.4	21.7	47.0	62.8	60.9
% WITH CAPABILITY	32.5	42.7	52.4	49.1	36.1	16.4	19.5	3.4	1.7	1.6
OREGON										
ESTIMATED POPULATION	1,367	2,433	2,016	2,434	1,457	554	1,658	202	61	7
% STD. ERROR	18.9	13.4	15.0	13.8	17.5	27.6	15.9	47.8	83.2	89.9
% WITH CAPABILITY	28.6	50.9	42.2	50.9	30.5	11.6	34.7	4.2	1.3	0.1
PENNSYLVANIA										
ESTIMATED POPULATION	1,811	3,089	3,932	3,549	2,297	1,003	1,963	303	207	194
% STD. ERROR	15.5	11.8	10.7	11.3	13.7	20.7	14.9	32.6	37.6	34.0
% WITH CAPABILITY	26.5	45.2	57.5	51.9	33.6	14.7	28.7	4.4	3.0	2.8
RHODE ISLAND										
ESTIMATED POPULATION	162	270	347	332	224	40	129	13	9	3
% STD. ERROR	55.3	41.2	37.1	37.9	46.3	104.5	60.3	175.8	200.8	344.2
% WITH CAPABILITY	30.9	51.4	66.0	63.2	42.6	7.6	24.5	2.4	1.7	0.6

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

STATE	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
NEW YORK					
ESTIMATED POPULATION	612	649	645		1,629
% STD. ERROR	24.0	23.6	26.9		14.6
% WITH CAPABILITY	8.7	9.2	9.2		23.2
NORTH CAROLINA					
ESTIMATED POPULATION	523	878	614		834
% STD. ERROR	26.0	21.1	26.5		20.2
% WITH CAPABILITY	10.1	16.9	11.8		16.1
NORTH DAKOTA					
ESTIMATED POPULATION	60	69	52		618
% STD. ERROR	84.5	81.3	104.7		24.1
% WITH CAPABILITY	3.7	4.2	3.2		37.7
OHIO					
ESTIMATED POPULATION	681	962	862		1,454
% STD. ERROR	20.2	18.3	22.0		15.2
% WITH CAPABILITY	8.2	11.5	10.3		17.4
OKLAHOMA					
ESTIMATED POPULATION	421	488	281		1,032
% STD. ERROR	28.4	28.9	37.3		18.9
% WITH CAPABILITY	8.6	10.0	5.8		21.2
OREGON					
ESTIMATED POPULATION	270	320	56		909
% STD. ERROR	34.7	31.7	102.4		19.7
% WITH CAPABILITY	5.7	6.7	1.2		19.0
PENNSYLVANIA					
ESTIMATED POPULATION	608	791	470		1,562
% STD. ERROR	22.6	20.4	30.2		15.2
% WITH CAPABILITY	8.9	11.6	6.9		22.9
RHODE ISLAND					
ESTIMATED POPULATION	33	41	13		89
% STD. ERROR	99.0	92.2	178.4		72.1
% WITH CAPABILITY	6.4	7.8	2.5		17.0

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BY STATE OF BASED AIRCRAFT

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STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	-----LORAN-----			OMEGA
							VFR ONLY	ENR IFR	TRM IFR	OTHER LRNAV
SOUTH CAROLINA										
ESTIMATED POPULATION	540	1,266	1,166	1,038	558	206	901	119	58	6
% STD. ERROR	30.6	19.1	20.2	21.1	28.7	48.5	23.7	61.4	94.8	164.1
% WITH CAPABILITY	24.5	57.4	52.9	47.1	25.3	9.3	40.9	5.4	2.6	0.3
SOUTH DAKOTA										
ESTIMATED POPULATION	439	392	544	412	253	66	160	39	13	10
% STD. ERROR	33.4	34.7	30.1	34.3	43.5	76.4	54.9	104.7	164.2	191.1
% WITH CAPABILITY	33.4	29.8	41.4	31.4	19.2	5.0	12.2	3.0	1.0	0.8
TENNESSEE										
ESTIMATED POPULATION	1,070	1,452	1,810	1,729	1,157	552	823	217	108	78
% STD. ERROR	21.1	17.3	15.8	16.0	19.1	25.6	23.1	43.7	63.3	57.3
% WITH CAPABILITY	33.7	45.8	57.0	54.5	36.5	17.4	25.9	6.8	3.4	2.4
TEXAS										
ESTIMATED POPULATION	4,845	9,872	10,716	10,777	8,258	3,385	4,385	831	648	856
% STD. ERROR	9.4	6.6	6.3	6.3	7.2	11.3	9.9	22.5	26.1	20.1
% WITH CAPABILITY	24.8	50.5	54.8	55.1	42.2	17.3	22.4	4.2	3.3	4.4
UTAH										
ESTIMATED POPULATION	297	641	678	671	332	160	292	43	8	29
% STD. ERROR	36.8	26.6	25.0	25.0	31.5	45.2	39.7	69.2	272.3	89.4
% WITH CAPABILITY	23.2	50.2	53.0	52.5	26.0	12.5	22.8	3.4	0.7	2.3
VERMONT										
ESTIMATED POPULATION	179	312	285	288	163	51	225	1	0	0
% STD. ERROR	52.2	38.1	40.9	40.5	53.2	94.4	46.1	262.6	0.0	0.0
% WITH CAPABILITY	26.8	46.8	42.7	43.1	24.5	7.7	33.8	0.2	0.0	0.0
VIRGINIA										
ESTIMATED POPULATION	869	1,946	2,016	1,925	1,335	538	875	195	73	107
% STD. ERROR	22.7	15.1	14.8	15.1	17.7	27.8	22.7	45.4	78.0	40.2
% WITH CAPABILITY	23.3	52.1	54.0	51.5	35.7	14.4	23.4	5.2	2.0	2.9
WASHINGTON										
ESTIMATED POPULATION	2,212	3,056	3,291	3,656	1,608	348	1,804	491	229	64
% STD. ERROR	14.5	11.9	11.8	11.1	16.9	38.4	15.7	33.9	47.6	69.2
% WITH CAPABILITY	31.1	42.9	46.2	51.4	22.6	4.9	25.3	6.9	3.2	0.9

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

STATE	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
SOUTH CAROLINA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	165	202	190		435
	52.9	44.2	49.4		27.4
	7.5	9.2	8.6		19.7
SOUTH DAKOTA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	33	53	40		446
	106.0	87.9	106.6		28.9
	2.5	4.0	3.0		33.9
TENNESSEE ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	384	547	162		647
	30.3	24.4	52.4		25.1
	12.1	17.2	5.1		20.4
TEXAS ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	2,226	2,555	1,152		4,411
	12.5	11.9	19.7		8.7
	11.4	13.1	5.9		22.6
UTAH ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	105	137	28		298
	44.8	46.7	121.0		39.8
	8.2	10.7	2.2		23.3
VERMONT ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	11	28	56		165
	200.0	122.5	93.6		50.9
	1.7	4.2	8.4		24.7
VIRGINIA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	383	513	297		823
	28.2	25.4	40.6		21.6
	10.2	13.7	7.9		22.0
WASHINGTON ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	194	233	124		1,500
	40.5	39.2	59.0		14.6
	2.7	3.3	1.7		21.1

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 13 OF 14

STATE	VOR NAVIGATION EQUIPMENT					LONG RANGE NAVIGATION EQUIPMENT				
	VOR 100CH	VOR 200CH	2+ VOR	ADF	DME	RNAV	VER ONLY	ENR IFR	TRM IFR	OMEGA LRNAV
WEST VIRGINIA										
ESTIMATED POPULATION	488	672	649	594	427	93	246	117	11	0
% STD. ERROR	30.9	26.4	26.4	27.3	31.5	58.6	42.1	65.4	216.9	0.0
% WITH CAPABILITY	39.2	53.9	52.0	47.7	34.3	7.4	19.7	9.3	0.9	0.0
WISCONSIN										
ESTIMATED POPULATION	1,120	2,217	2,107	2,117	1,260	264	951	295	220	56
% STD. ERROR	20.1	14.2	14.8	14.8	18.7	37.7	21.4	38.9	47.4	92.4
% WITH CAPABILITY	22.7	44.9	42.7	42.9	25.5	5.4	19.3	6.0	4.5	1.1
WYOMING										
ESTIMATED POPULATION	276	482	514	443	330	101	268	6	3	0
% STD. ERROR	41.0	30.2	30.2	32.4	37.8	62.5	41.9	240.3	184.9	0.0
% WITH CAPABILITY	30.6	53.5	57.0	49.1	36.6	11.2	29.8	0.7	0.3	0.0
PUERTO RICO										
ESTIMATED POPULATION	23	64	66	54	39	14	19	17	14	3
% STD. ERROR	145.3	82.4	81.8	89.2	98.0	169.8	160.6	114.9	144.5	397.5
% WITH CAPABILITY	25.7	71.3	73.9	60.3	43.6	16.2	21.3	18.9	15.4	3.1
OTHER U.S. TERRITORIES										
ESTIMATED POPULATION	47	42	66	85	54	9	22	6	4	4
% STD. ERROR	102.1	91.4	80.3	70.0	83.7	166.8	114.2	225.8	208.8	208.8
% WITH CAPABILITY	42.7	38.7	59.8	77.4	49.3	8.0	20.4	5.3	4.1	4.1
TOTAL										
ESTIMATED POPULATION	68,073	118,974	128,943	122,501	82,214	30,435	61,922	10,955	6,116	2,522
% STD. ERROR	2.1	1.3	0.9	1.0	1.4	2.9	2.2	5.8	8.1	11.0
% WITH CAPABILITY	26.2	45.9	49.7	47.2	31.7	11.7	23.9	4.2	2.4	1.9

7.12 1988 GENERAL AVIATION AIRCRAFT WITH NAVIGATION EQUIPMENT
BY STATE OF BASED AIRCRAFT

STATE	OTHER NAVIGATION EQUIPMENT				NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET		
WEST VIRGINIA					
ESTIMATED POPULATION	82	92	52		194
% STD. ERROR	61.2	57.7	87.2		44.3
% WITH CAPABILITY	6.6	7.4	4.2		15.6
WISCONSIN					
ESTIMATED POPULATION	226	288	143		1,440
% STD. ERROR	33.5	31.3	58.4		16.1
% WITH CAPABILITY	4.6	5.8	2.9		29.2
WYOMING					
ESTIMATED POPULATION	55	45	23		143
% STD. ERROR	68.5	70.4	138.5		55.4
% WITH CAPABILITY	6.1	5.0	2.6		15.8
PUERTO RICO					
ESTIMATED POPULATION	21	17	6		8
% STD. ERROR	128.7	150.3	193.3		205.4
% WITH CAPABILITY	23.2	19.3	6.9		9.5
OTHER U.S. TERRITORIES					
ESTIMATED POPULATION	13	15	11		16
% STD. ERROR	122.1	127.3	134.5		183.9
% WITH CAPABILITY	12.2	13.5	10.1		14.4
TOTAL					
ESTIMATED POPULATION	19,062	22,353	14,268		65,207
% STD. ERROR	3.2	2.5	5.1		1.5
% WITH CAPABILITY	7.3	8.6	5.5		25.1

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.13 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTN	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA REC'D	NO EQUIP	
FIXED WING											
FIXED WING - PISTON											
1 ENG: 1-3 SEATS											
ESTIMATED POPULATION	419	2,655	243	235	798	467	164	85	170	64,954	18,485
% STD. ERROR	31.7	12.9	46.0	46.5	24.0	30.8	42.4	73.5	54.1	1.2	4.1
% WITH CAPABILITY	0.5	3.1	0.3	0.3	0.9	0.6	0.2	0.1	0.2	76.8	21.9
1 ENG: 4+ SEATS											
ESTIMATED POPULATION	5,965	18,319	1,301	1,476	15,576	30,604	16,261	1,132	539	36,150	68,269
% STD. ERROR	8.2	4.5	19.9	18.3	5.1	3.2	4.2	20.9	30.5	2.8	1.7
% WITH CAPABILITY	5.0	15.5	1.1	1.2	13.2	25.9	13.7	1.0	0.5	30.5	57.7
1 ENGINE: TOTAL											
ESTIMATED POPULATION	6,384	20,974	1,544	1,711	16,374	31,071	16,425	1,217	709	101,105	86,754
% STD. ERROR	8.0	4.2	18.2	17.0	5.0	3.2	4.2	20.1	26.6	1.3	1.6
% WITH CAPABILITY	3.1	10.3	0.8	0.8	8.1	15.3	8.1	0.6	0.3	49.8	42.8
2 ENG: 1-6 SEATS											
ESTIMATED POPULATION	5,023	8,243	300	934	2,297	2,527	12,081	425	268	2,214	13,332
% STD. ERROR	6.2	4.4	36.5	20.9	12.1	11.3	2.8	29.1	41.0	11.3	2.5
% WITH CAPABILITY	28.7	47.1	1.7	5.3	13.1	14.4	69.0	2.4	1.5	12.6	76.1
2 ENG: 7+ SEATS											
ESTIMATED POPULATION	3,653	5,593	415	328	1,625	1,357	6,178	268	83	1,523	6,406
% STD. ERROR	8.1	4.9	30.7	34.2	17.0	18.7	3.2	41.9	34.7	10.5	3.5
% WITH CAPABILITY	41.5	63.5	4.7	3.7	18.5	15.4	70.2	3.0	0.9	17.3	72.7
2 ENGINE: TOTAL											
ESTIMATED POPULATION	8,676	13,835	715	1,262	3,922	3,884	18,259	693	351	3,736	19,738
% STD. ERROR	5.0	3.3	23.5	17.8	10.0	9.9	2.1	24.1	32.3	7.9	2.0
% WITH CAPABILITY	33.0	52.6	2.7	4.8	14.9	14.8	69.4	2.6	1.3	14.2	75.0
PISTON: OTHER											
ESTIMATED POPULATION	0	4	0	0	0	0	13	0	4	108	69
% STD. ERROR	0.0	174.8	0.0	0.0	0.0	0.0	80.5	0.0	174.8	19.3	29.7
% WITH CAPABILITY	0.0	2.3	0.0	0.0	0.0	0.0	7.1	0.0	2.3	59.6	38.1
PISTON: TOTAL											
ESTIMATED POPULATION	15,061	34,813	2,259	2,973	20,296	34,955	34,696	1,910	1,064	104,949	106,561
% STD. ERROR	4.4	2.9	14.5	12.4	4.5	3.0	2.3	15.5	20.7	1.2	1.3
% WITH CAPABILITY	6.6	15.2	1.0	1.3	8.8	15.2	15.1	0.8	0.5	45.7	46.4

7.13 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT											NO EQUIP	EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECDER				
FIXED WING - TURBOPROP													
2 ENG: 1-12 SEATS													
ESTIMATED POPULATION	3,914	4,236	480	522	946	794	4,001	282	120	178	3,916		
% STD. ERROR	2.8	1.9	24.8	22.6	15.6	17.6	2.3	33.9	42.1	33.2	2.8		
% WITH CAPABILITY	86.2	93.2	10.6	11.5	20.8	17.5	88.1	6.2	2.6	3.9	86.2		
2 ENG: 13+ SEATS													
ESTIMATED POPULATION	469	792	99	48	117	97	388	10	28	130	757		
% STD. ERROR	10.8	6.0	19.7	38.3	30.6	35.1	11.5	141.5	53.8	31.6	6.9		
% WITH CAPABILITY	46.4	78.5	9.8	4.7	11.6	9.6	38.4	1.0	2.8	12.8	74.9		
2 ENGINE: TOTAL													
ESTIMATED POPULATION	4,383	5,029	579	569	1,064	890	4,389	292	148	307	4,672		
% STD. ERROR	2.7	1.8	20.8	20.9	14.3	16.1	2.3	33.1	35.6	23.3	2.6		
% WITH CAPABILITY	78.9	90.6	10.4	10.3	19.2	16.0	79.0	5.3	2.7	5.5	84.1		
TURBOPROP: OTHER													
ESTIMATED POPULATION	54	75	8	16	0	0	59	4	0	107	101		
% STD. ERROR	29.5	20.8	110.3	77.5	0.0	0.0	25.4	149.0	0.0	15.9	20.0		
% WITH CAPABILITY	23.6	32.7	3.5	6.9	0.0	0.0	25.5	1.9	0.0	46.4	44.1		
TURBOPROP: TOTAL													
ESTIMATED POPULATION	4,437	5,104	587	585	1,064	890	4,448	296	148	414	4,774		
% STD. ERROR	2.7	1.8	20.6	20.5	14.3	16.1	2.3	32.7	35.6	17.8	2.6		
% WITH CAPABILITY	76.7	88.3	10.1	10.1	18.4	15.4	76.9	5.1	2.6	7.2	82.6		
FIXED WING - TURBOJET													
2 ENGINE: TOTAL													
ESTIMATED POPULATION	3,588	3,426	812	1,040	905	602	3,497	227	322	292	1,768		
% STD. ERROR	2.7	3.1	12.6	11.4	12.9	17.4	2.9	27.4	24.2	29.0	7.7		
% WITH CAPABILITY	88.4	84.4	20.0	25.6	22.3	14.8	86.1	5.6	7.9	7.2	43.5		
TURBOJET: OTHER													
ESTIMATED POPULATION	316	320	69	149	42	46	304	15	48	153	155		
% STD. ERROR	7.0	7.1	28.8	17.2	37.7	35.6	7.1	66.5	35.6	13.7	15.6		
% WITH CAPABILITY	63.9	64.8	14.0	30.2	8.6	9.3	61.6	3.0	9.6	31.0	31.3		
TURBOJET: TOTAL													
ESTIMATED POPULATION	3,904	3,746	881	1,189	947	648	3,802	242	370	445	1,922		
% STD. ERROR	2.5	2.9	11.8	10.2	12.5	16.4	2.8	26.0	21.6	19.6	7.2		
% WITH CAPABILITY	85.7	82.2	19.3	26.1	20.8	14.2	83.5	5.3	8.1	9.8	42.2		

7.13 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPT	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA REC'D	NO EQUIP	
FIXED WING: TOTAL											
ESTIMATED POPULATION	23,402	43,663	3,727	4,747	22,307	36,494	42,946	2,448	1,581	105,807	113,257
% STD. ERROR	2.9	2.3	9.8	8.5	4.1	2.9	1.9	13.0	15.2	1.2	1.3
% WITH CAPABILITY	9.8	18.2	1.6	2.0	9.3	15.2	17.9	1.0	0.7	44.1	47.2
ROTORCRAFT											
PISTON											
ESTIMATED POPULATION	4	97	6	0	0	0	12	0	0	5,057	164
% STD. ERROR	293.6	66.5	62.8	0.0	0.0	0.0	186.9	0.0	0.0	1.9	42.7
% WITH CAPABILITY	0.1	1.8	0.1	0.0	0.0	0.0	0.2	0.0	0.0	94.8	3.1
TURBINE											
ESTIMATED POPULATION	531	1,369	104	124	82	167	537	30	112	2,154	2,014
% STD. ERROR	15.0	10.7	40.7	36.5	49.9	31.2	15.4	44.4	45.3	7.9	8.2
% WITH CAPABILITY	12.0	30.9	2.4	2.8	1.9	3.8	12.1	0.7	2.5	48.6	45.4
ROTORCRAFT: TOTAL											
ESTIMATED POPULATION	535	1,465	110	124	82	167	550	30	112	7,211	2,179
% STD. ERROR	15.0	10.9	38.7	36.5	49.9	31.2	15.6	44.4	45.3	2.7	8.3
% WITH CAPABILITY	5.5	15.0	1.1	1.3	0.8	1.7	5.6	0.3	1.2	73.8	22.3
OTHER											
ESTIMATED POPULATION	11	16	9	48	0	0	0	0	6	9,801	54
% STD. ERROR	50.5	83.6	54.9	78.9	0.0	0.0	0.0	0.0	87.4	0.5	47.6
% WITH CAPABILITY	0.1	0.2	0.1	0.5	0.0	0.0	0.0	0.0	0.1	98.8	0.5
TOTAL											
ESTIMATED POPULATION	23,947	45,144	3,846	4,920	22,389	36,660	43,496	2,478	1,700	122,820	115,490
% STD. ERROR	2.9	2.3	9.5	8.3	4.1	2.9	1.9	12.9	14.4	1.1	1.3
% WITH CAPABILITY	9.2	17.4	1.5	1.9	8.6	14.1	16.8	1.0	0.7	47.3	44.5

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.14 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA REC'D	NO EQUIP	
EXECUTIVE											
ESTIMATED POPULATION	7,916	8,664	1,404	1,560	2,033	1,793	8,703	527	459	805	7,660
% STD. ERROR	4.2	4.2	11.5	10.3	11.4	12.3	4.3	23.7	21.6	19.3	5.3
% WITH CAPABILITY	72.8	79.6	12.9	14.3	18.7	16.5	80.0	4.8	4.2	7.4	70.4
BUSINESS											
ESTIMATED POPULATION	7,479	13,604	1,194	1,430	5,732	9,670	15,234	730	220	5,828	24,591
% STD. ERROR	7.1	5.1	20.1	18.0	9.1	6.9	4.6	25.5	44.7	8.6	3.8
% WITH CAPABILITY	21.4	39.0	3.4	4.1	16.4	27.7	43.6	2.1	0.6	16.7	70.4
PERSONAL											
ESTIMATED POPULATION	4,100	13,921	392	942	10,950	20,195	11,480	464	171	53,574	59,418
% STD. ERROR	10.3	5.6	37.2	22.0	6.3	4.3	5.9	30.1	53.6	2.1	2.2
% WITH CAPABILITY	3.3	11.4	0.3	0.8	8.9	16.5	9.4	0.4	0.1	43.7	48.5
INSTRUCTIONAL											
ESTIMATED POPULATION	603	1,141	242	281	853	1,503	896	166	242	8,542	7,101
% STD. ERROR	30.6	20.0	47.9	43.9	24.5	18.4	21.5	56.7	47.9	6.9	8.1
% WITH CAPABILITY	3.6	6.8	1.5	1.7	5.1	9.0	5.4	1.0	1.5	51.3	42.6
AERIAL APPLICATION											
ESTIMATED POPULATION	50	155	0	0	36	97	215	0	0	6,353	682
% STD. ERROR	76.5	40.5	0.0	0.0	121.5	54.7	41.6	0.0	0.0	3.8	23.7
% WITH CAPABILITY	0.7	2.2	0.0	0.0	0.5	1.4	3.0	0.0	0.0	90.2	9.7
AERIAL OBSERVATION											
ESTIMATED POPULATION	49	572	0	1	317	459	439	35	0	2,449	2,005
% STD. ERROR	62.9	24.9	0.0	185.7	38.2	32.4	27.8	124.7	0.0	13.1	14.8
% WITH CAPABILITY	1.0	12.0	0.0	0.0	6.7	9.6	9.2	0.7	0.0	51.5	42.2
OTHER WORK											
ESTIMATED POPULATION	80	180	4	4	107	191	98	2	0	1,195	501
% STD. ERROR	50.5	39.1	159.1	159.1	69.4	51.0	46.1	251.7	0.0	18.2	29.0
% WITH CAPABILITY	4.3	9.8	0.2	0.2	5.8	10.4	5.3	0.1	0.0	65.0	27.2
COMPUTER AIR CARRIER											
ESTIMATED POPULATION	174	644	120	33	66	44	266	41	29	142	710
% STD. ERROR	37.4	18.7	50.0	84.1	72.0	69.0	38.5	72.6	56.9	39.9	19.4
% WITH CAPABILITY	17.9	66.6	12.4	3.4	6.8	4.5	27.5	4.2	3.0	14.7	73.4

7.14 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	GUIDANCE AND CONTROL EQUIPMENT											EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPT	1 AXIS AUTFLT	2 AXIS AUTFLT	3 AXIS AUTFLT	AUTO LAND	FL DATA REC'D	NO EQUIP		
AIR TAXI												
ESTIMATED POPULATION	2,091	2,932	163	291	702	937	3,213	119	113	1,532	3,929	
% STD. ERROR	12.4	10.1	39.1	33.1	25.1	21.8	9.9	65.3	52.3	15.4	9.4	
% WITH CAPABILITY	32.1	45.0	2.5	4.5	10.8	14.4	49.3	1.8	1.7	23.5	60.3	
OTHER												
ESTIMATED POPULATION	396	1,014	68	156	166	368	577	23	95	2,064	1,643	
% STD. ERROR	21.7	18.2	30.2	45.7	50.3	31.3	22.1	63.1	58.0	12.4	14.2	
% WITH CAPABILITY	9.7	24.8	1.7	3.8	4.1	9.0	14.1	0.6	2.3	50.6	40.3	
INACTIVE												
ESTIMATED POPULATION	1,168	2,333	279	254	1,399	1,511	2,469	344	330	40,111	7,403	
% STD. ERROR	12.8	10.3	37.6	35.5	15.2	14.7	9.6	34.4	28.7	1.2	6.1	
% WITH CAPABILITY	2.4	4.7	0.6	0.5	2.8	3.1	5.0	0.7	0.7	81.5	15.0	
TOTAL												
ESTIMATED POPULATION	23,947	45,144	3,846	4,920	22,389	36,660	43,496	2,478	1,700	122,820	115,490	
% STD. ERROR	2.9	2.3	9.5	8.3	4.1	2.9	1.9	12.9	14.4	1.1	1.3	
% WITH CAPABILITY	9.2	17.4	1.5	1.9	8.6	14.1	16.8	1.0	0.7	47.3	44.5	

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.15 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY REGION OF BASED AIRCRAFT

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GUIDANCE AND CONTROL EQUIPMENT

REGION	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECORDER	NO EQUIP	EMER LOC TRANS
ALASKAN ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	200 49.1 2.4	734 24.2 9.0	8 169.9 0.1	7 185.9 0.1	41 109.9 0.5	282 40.8 3.5	222 41.8 2.7	3 94.6 0.0	4 92.3 0.0	4,759 8.6 58.3	3,208 11.5 39.3
CENTRAL ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	1,583 15.2 11.6	2,320 13.1 16.9	304 33.7 2.2	218 39.2 1.6	1,080 20.3 7.9	1,841 15.7 13.5	2,572 12.6 18.8	203 46.0 1.5	57 56.0 0.4	6,549 7.8 47.8	5,826 8.7 42.6
EASTERN ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	3,017 10.5 10.8	5,066 8.4 18.1	451 24.0 1.6	912 19.8 3.3	3,333 11.7 11.9	4,732 9.9 16.9	5,456 8.2 19.5	144 55.8 0.5	254 38.9 0.9	11,518 5.7 41.1	13,835 5.5 49.3
GREAT LAKES ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	3,544 9.6 8.3	7,455 7.3 17.5	588 23.0 1.4	892 17.7 2.1	2,975 12.2 7.0	6,437 8.3 15.1	6,344 7.5 14.9	204 37.2 0.5	183 39.4 0.4	20,258 4.3 47.6	18,423 4.7 43.3
NEW ENGLAND ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	734 23.1 7.1	1,403 17.5 13.6	72 63.0 0.7	126 51.3 1.2	981 21.7 9.5	1,403 18.5 13.5	1,665 16.6 16.1	89 65.7 0.9	26 95.3 0.3	4,453 9.5 43.0	4,658 9.9 45.0
NORTHWEST MOUNTAIN ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	1,257 16.6 5.6	3,313 11.0 14.7	334 33.7 1.5	358 33.0 1.6	1,602 16.3 7.1	2,895 12.7 12.9	2,793 11.9 12.4	189 48.8 0.8	54 74.6 0.2	10,720 6.1 47.6	10,443 6.5 46.4
SOUTHERN ESTIMATED POPULATION & STD. ERROR & WITH CAPABILITY	5,284 8.3 13.7	8,495 6.6 22.0	818 21.9 2.1	835 21.8 2.2	4,460 10.2 11.5	6,500 8.5 16.8	8,995 6.3 23.3	567 29.0 1.5	463 30.5 1.2	15,692 5.0 40.6	19,212 4.5 49.7

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REGION	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPT	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECORDER	NO EQUIP	
SOUTHWESTERN ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	3,993 9.5 12.1	7,049 7.4 21.4	850 23.9 2.6	1,073 19.9 3.3	2,911 12.5 8.8	5,210 9.4 15.8	6,715 7.4 20.4	631 25.0 1.9	366 33.1 1.1	14,779 5.0 44.8	16,246 5.0 49.3
	3,547 9.8 8.2	7,683 7.1 17.7	266 36.2 0.6	408 28.4 0.9	4,605 9.8 10.6	6,251 8.4 14.4	7,169 7.4 16.5	370 33.4 0.9	237 36.2 0.5	19,324 4.3 44.5	19,984 4.5 46.0
	23,947 2.9 9.2	45,144 2.3 17.4	3,846 9.5 1.5	4,920 8.3 1.9	22,389 4.1 8.6	36,660 2.9 14.1	43,496 1.9 16.8	2,478 12.9 1.0	1,700 14.4 0.7	122,820 1.1 47.3	115,490 1.3 44.5
TOTAL											
ESTIMATED POPULATION											
% STD. ERROR											
% WITH CAPABILITY											

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.16 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY STATE OF BASED AIRCRAFT

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STATE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA REC'D	NO EQUIP	
ALABAMA											
ESTIMATED POPULATION	427	756	15	92	316	486	794	3	15	1,035	1,348
% STD. ERROR	30.0	23.9	130.6	67.9	42.0	31.3	23.1	167.0	98.4	19.8	18.3
% WITH CAPABILITY	14.7	26.0	0.5	3.2	10.9	16.7	27.3	0.1	0.5	35.6	46.4
ALASKA											
ESTIMATED POPULATION	200	734	8	7	41	282	222	3	4	4,759	3,208
% STD. ERROR	49.1	24.2	169.9	185.9	109.9	40.8	41.8	94.6	92.3	8.6	11.5
% WITH CAPABILITY	2.4	9.0	0.1	0.1	0.5	3.5	2.7	0.0	0.0	58.3	39.3
ARIZONA											
ESTIMATED POPULATION	334	987	18	51	566	782	876	26	11	2,985	2,460
% STD. ERROR	32.7	19.9	77.4	83.8	28.6	24.2	22.6	62.1	112.7	11.7	13.3
% WITH CAPABILITY	5.6	16.6	0.3	0.9	9.5	13.2	14.7	0.4	0.2	50.2	41.4
ARKANSAS											
ESTIMATED POPULATION	275	396	0	0	176	238	402	17	0	1,588	829
% STD. ERROR	34.6	31.2	0.0	0.0	48.3	45.7	30.9	117.6	0.0	16.4	23.0
% WITH CAPABILITY	10.8	15.5	0.0	0.0	6.9	9.3	15.7	0.7	0.0	62.2	32.5
CALIFORNIA											
ESTIMATED POPULATION	3,034	6,217	234	320	3,858	5,181	5,646	337	215	14,983	16,025
% STD. ERROR	10.8	8.1	40.5	31.3	10.8	9.3	8.4	36.2	39.0	5.0	5.1
% WITH CAPABILITY	8.8	18.1	0.7	0.9	11.2	15.1	16.4	1.0	0.6	43.6	46.6
COLORADO											
ESTIMATED POPULATION	344	827	74	104	470	496	805	63	17	1,822	2,189
% STD. ERROR	34.6	23.6	65.3	57.4	31.5	30.8	24.3	83.9	53.4	15.4	14.8
% WITH CAPABILITY	8.0	19.3	1.7	2.4	11.0	11.6	18.8	1.5	0.4	42.5	51.0
CONNECTICUT											
ESTIMATED POPULATION	233	473	34	16	274	283	440	30	0	1,068	979
% STD. ERROR	41.8	31.4	93.6	156.8	40.6	41.1	33.4	118.5	0.0	19.9	21.7
% WITH CAPABILITY	9.6	19.4	1.4	0.6	11.3	11.6	18.0	1.2	0.0	43.8	40.2
DELAWARE											
ESTIMATED POPULATION	237	380	29	103	55	228	391	9	7	563	519
% STD. ERROR	33.4	30.1	71.4	54.2	87.6	46.1	30.0	169.4	221.2	28.7	28.4
% WITH CAPABILITY	20.0	32.1	2.5	8.7	4.7	19.2	33.0	0.8	0.6	47.5	43.8

7.16 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
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STATE	GUIDANCE AND CONTROL EQUIPMENT											EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECDER	NO EQUIP		
DIST. OF COLUMBIA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	15	19	0	0	0	18	18	0	3	96	24	
	104.7	112.4	0.0	0.0	0.0	169.2	140.4	0.0	221.4	74.8	120.5	
	11.0	13.4	0.0	0.0	0.0	13.1	12.9	0.0	1.8	69.5	17.4	
FLORIDA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	2,209	3,525	354	332	2,267	2,675	3,658	189	257	6,133	7,996	
	14.2	10.8	32.4	36.7	14.8	13.5	10.5	47.4	40.2	8.2	7.3	
	14.3	22.7	2.3	2.1	14.6	17.3	23.6	1.2	1.7	39.6	51.6	
GEORGIA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	528	924	91	116	395	960	1,018	158	63	2,431	2,491	
	23.6	19.5	67.4	56.5	32.3	22.6	18.9	57.0	91.3	12.9	13.1	
	9.4	16.5	1.6	2.1	7.1	17.1	18.2	2.8	1.1	43.4	44.5	
HAWAII ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	38	73	2	9	19	48	39	4	7	278	353	
	77.2	62.8	387.0	164.8	121.4	94.6	90.8	290.8	195.3	37.6	35.0	
	5.7	11.2	0.3	1.4	2.9	7.3	5.9	0.7	1.0	42.3	53.7	
IDAHO ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	70	224	64	11	46	301	172	68	0	1,127	1,003	
	57.9	42.1	86.6	101.8	94.5	40.5	44.8	82.5	0.0	18.8	21.6	
	3.2	10.2	2.9	0.5	2.1	13.7	7.8	3.1	0.0	51.4	45.8	
ILLINOIS ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	522	1,474	133	354	634	1,328	1,168	46	11	3,435	3,922	
	23.0	16.3	53.6	29.3	27.1	18.5	17.6	66.7	73.0	10.8	10.6	
	6.4	18.0	1.6	4.3	7.8	16.3	14.3	0.6	0.1	42.0	48.0	
INDIANA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	546	1,205	39	80	361	896	928	9	29	1,929	2,086	
	27.4	18.9	100.2	73.0	33.1	23.4	20.8	111.7	109.2	14.6	14.8	
	11.8	26.0	0.8	1.7	7.8	19.3	20.0	0.2	0.6	41.6	45.0	
IOWA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	289	582	69	35	435	448	654	71	5	1,260	1,178	
	36.2	27.2	73.0	135.5	32.7	31.9	25.4	91.7	196.3	17.9	19.6	
	10.2	20.4	2.4	1.2	15.2	15.7	23.0	2.5	0.2	44.2	41.3	

7.16 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
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GUIDANCE AND CONTROL EQUIPMENT

STATE	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPT	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA REC'D	NO EQUIP	EMER LOC TRANS
KANSAS											
ESTIMATED POPULATION	597	850	120	106	302	513	735	96	35	1,721	1,810
% STD. ERROR	24.6	21.7	53.9	55.9	38.7	31.1	24.1	64.7	58.1	15.1	16.0
% WITH CAPABILITY	15.3	21.7	3.1	2.7	7.7	13.1	18.8	2.5	0.9	44.0	46.3
KENTUCKY											
ESTIMATED POPULATION	363	466	73	102	161	256	601	67	54	813	943
% STD. ERROR	30.3	26.9	74.3	56.6	49.6	42.3	25.1	83.8	96.6	23.6	21.3
% WITH CAPABILITY	19.0	24.5	3.9	5.3	8.5	13.5	31.6	3.5	2.8	42.7	49.6
LOUISIANA											
ESTIMATED POPULATION	408	614	36	56	303	516	556	50	60	1,575	1,680
% STD. ERROR	27.0	23.6	117.0	94.3	37.9	29.5	24.9	85.1	88.7	15.5	16.2
% WITH CAPABILITY	12.0	18.1	1.1	1.7	8.9	15.2	16.4	1.5	1.8	46.4	49.4
MAINE											
ESTIMATED POPULATION	94	144	18	27	69	185	153	16	6	955	471
% STD. ERROR	65.6	52.5	152.1	107.7	66.6	49.3	52.7	138.6	151.2	20.8	30.1
% WITH CAPABILITY	6.2	9.6	1.2	1.8	4.6	12.3	10.2	1.1	0.4	63.5	31.3
MARYLAND											
ESTIMATED POPULATION	319	574	9	74	291	614	638	13	9	1,124	1,919
% STD. ERROR	37.7	27.8	198.1	75.2	40.5	28.5	26.4	161.6	191.0	18.6	15.6
% WITH CAPABILITY	9.2	16.6	0.3	2.1	8.4	17.8	18.5	0.4	0.3	32.5	55.5
MASSACHUSETTS											
ESTIMATED POPULATION	290	536	10	50	366	625	688	27	11	1,191	2,063
% STD. ERROR	38.7	28.3	161.3	84.2	36.8	28.2	26.8	131.5	182.6	18.6	15.1
% WITH CAPABILITY	7.7	14.3	0.3	1.3	9.7	16.6	18.3	0.7	0.3	31.7	54.8
MICHIGAN											
ESTIMATED POPULATION	557	1,437	127	72	308	1,095	1,120	20	38	3,930	3,309
% STD. ERROR	23.5	17.3	49.3	41.1	38.8	20.9	18.8	115.0	77.9	10.5	11.7
% WITH CAPABILITY	7.0	18.2	1.6	0.9	3.9	13.9	14.2	0.2	0.5	49.7	41.8
MINNESOTA											
ESTIMATED POPULATION	302	492	28	44	514	725	567	24	11	3,126	2,068
% STD. ERROR	35.3	28.7	84.9	95.6	31.5	25.0	26.6	71.8	95.7	11.6	14.8
% WITH CAPABILITY	5.4	8.8	0.5	0.8	9.2	13.0	10.1	0.4	0.2	55.9	37.0

7.16 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
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STATE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECDER	NO EQUIP	
MISSISSIPPI											
ESTIMATED POPULATION	174	332	40	51	40	351	365	20	2	1,118	924
% STD. ERROR	49.1	35.1	121.5	89.4	114.8	38.0	32.3	209.3	207.5	19.2	21.8
% WITH CAPABILITY	8.3	15.8	1.9	2.4	1.9	16.7	17.3	0.9	0.1	53.0	43.8
MISSOURI											
ESTIMATED POPULATION	517	525	80	63	307	632	745	28	15	2,526	1,936
% STD. ERROR	27.6	26.1	69.2	58.6	37.7	26.0	23.3	86.4	143.9	13.2	15.0
% WITH CAPABILITY	10.8	10.9	1.7	1.3	6.4	13.2	15.6	0.6	0.3	52.7	40.4
MONTANA											
ESTIMATED POPULATION	42	174	4	4	99	185	140	0	0	1,138	714
% STD. ERROR	71.0	49.1	102.6	102.6	71.1	52.8	51.0	0.0	0.0	19.4	26.0
% WITH CAPABILITY	2.1	9.0	0.2	0.2	5.1	9.5	7.2	0.0	0.0	58.5	36.7
NEBRASKA											
ESTIMATED POPULATION	180	364	34	13	35	248	437	8	1	1,042	903
% STD. ERROR	44.4	34.1	75.8	96.1	96.3	43.2	32.1	112.0	257.9	19.4	22.7
% WITH CAPABILITY	8.4	17.0	1.6	0.6	1.7	11.6	20.5	0.4	0.1	48.7	42.2
NEVADA											
ESTIMATED POPULATION	131	382	12	26	146	225	573	0	5	1,031	1,093
% STD. ERROR	38.3	32.1	79.5	143.5	49.6	43.8	27.3	0.0	121.7	20.3	20.0
% WITH CAPABILITY	5.6	16.1	0.5	1.1	6.1	9.5	24.2	0.0	0.2	43.6	46.2
NEW HAMPSHIRE											
ESTIMATED POPULATION	68	131	9	16	105	101	246	12	8	793	536
% STD. ERROR	55.2	54.4	85.7	63.9	63.4	61.4	41.2	139.6	105.7	22.2	28.2
% WITH CAPABILITY	4.7	9.0	0.6	1.1	7.2	6.9	16.9	0.9	0.6	54.4	36.8
NEW JERSEY											
ESTIMATED POPULATION	522	769	87	197	823	741	923	32	53	1,452	2,320
% STD. ERROR	24.4	20.5	53.6	39.2	23.9	25.2	20.3	106.3	69.5	16.8	13.8
% WITH CAPABILITY	11.8	17.4	2.0	4.5	18.6	16.8	20.9	0.7	1.2	32.9	52.6
NEW MEXICO											
ESTIMATED POPULATION	292	447	44	43	215	450	332	6	15	1,166	1,279
% STD. ERROR	38.1	31.1	98.6	95.9	44.1	33.4	34.5	76.4	116.8	19.1	19.2
% WITH CAPABILITY	11.2	17.2	1.7	1.7	8.3	17.3	12.8	0.2	0.6	44.9	49.2

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STATE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECDER	NO EQUIP	
NEW YORK	495	1,236	101	259	762	1,186	1,168	0	9	3,299	3,334
	25.8	17.5	52.0	39.7	24.8	20.2	19.0	0.0	133.8	10.9	11.5
	7.0	17.6	1.4	3.7	10.8	16.9	16.6	0.0	0.1	46.9	47.4
NORTH CAROLINA	808	1,321	189	111	796	1,125	1,190	53	70	2,072	2,540
	22.6	17.6	45.8	58.0	24.0	21.1	18.9	85.2	79.5	14.1	13.3
	15.6	25.5	3.7	2.2	15.4	21.7	23.0	1.0	1.4	40.0	49.0
NORTH DAKOTA	73	115	19	0	136	60	106	0	0	1,138	355
	79.1	64.5	182.9	0.0	61.0	92.7	61.9	0.0	0.0	19.2	36.1
	4.5	7.0	1.1	0.0	8.3	3.7	6.5	0.0	0.0	69.5	21.7
OHIO	1,106	1,759	225	305	754	1,614	1,605	105	92	3,416	4,158
	17.6	14.9	34.1	29.3	23.9	16.7	15.5	59.6	60.6	10.9	10.3
	13.3	21.1	2.7	3.7	9.0	19.3	19.2	1.3	1.1	40.9	49.8
OKLAHOMA	571	1,025	90	22	297	701	868	55	53	2,194	2,408
	27.4	19.9	88.1	57.3	37.3	25.8	22.2	54.4	49.9	13.7	13.8
	11.7	21.0	1.9	0.4	6.1	14.4	17.8	1.1	1.1	45.0	49.4
OREGON	293	718	57	30	431	825	945	0	0	2,204	2,037
	35.2	23.4	72.7	88.6	30.0	23.8	21.4	0.0	0.0	13.6	14.7
	6.1	15.0	1.2	0.6	9.0	17.3	19.8	0.0	0.0	46.1	42.6
PENNSYLVANIA	740	1,012	127	128	883	1,136	1,370	32	122	2,880	3,204
	22.5	19.4	46.0	47.4	23.2	20.5	16.8	117.7	58.8	11.7	11.8
	10.8	14.8	1.9	1.9	12.9	16.6	20.1	0.5	1.8	42.1	46.9
RHODE ISLAND	36	62	2	1	114	137	47	2	2	145	280
	99.2	82.5	408.9	515.7	65.4	61.9	88.7	499.9	566.9	53.2	42.0
	6.9	11.7	0.3	0.2	21.7	26.0	9.0	0.4	0.3	27.5	53.3

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STATE	GUIDANCE AND CONTROL EQUIPMENT										EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECORDER	NO EQUIP	
SOUTH CAROLINA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	212 44.8 9.6	368 35.1 16.7	21 140.3 0.9	8 96.2 0.3	216 48.0 9.8	160 51.3 7.3	534 30.4 24.2	36 134.0 1.6	3 175.3 0.1	913 20.9 41.4	1,010 21.8 45.8
	73 71.3 5.6	292 41.0 22.2	9 195.9 0.7	8 171.7 0.6	78 79.4 5.9	100 70.9 7.6	153 54.1 11.6	0 0.0 0.0	0 0.0 0.0	618 25.2 47.0	638 27.9 48.5
	547 26.3 17.2	786 22.6 24.8	34 113.8 1.1	23 99.9 0.7	260 42.2 8.2	462 32.9 14.6	816 22.5 25.7	38 114.4 1.2	0 0.0 0.0	1,145 18.9 36.1	1,917 15.7 60.4
TEXAS ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	2,447 12.5 12.5	4,566 9.5 23.4	680 26.0 3.5	952 21.3 4.9	1,920 15.8 9.8	3,306 12.0 16.9	4,557 9.3 23.3	502 29.3 2.6	239 43.7 1.2	8,255 6.8 42.2	10,051 6.5 51.4
	157 45.6 12.3	322 34.1 25.2	14 127.5 1.1	26 134.0 2.0	91 56.9 7.1	225 44.7 17.6	202 40.9 15.8	7 188.4 0.6	0 0.0 0.0	551 29.3 43.1	650 25.3 50.8
	13 191.1 1.9	56 89.1 8.4	0 0.0 0.0	16 179.0 2.4	53 98.2 8.0	73 86.0 10.9	91 71.8 13.7	2 252.9 0.3	0 0.0 0.0	302 36.7 45.3	328 39.4 49.2
VIRGINIA ESTIMATED POPULATION % STD. ERROR % WITH CAPABILITY	605 24.5 16.2	800 21.9 21.4	81 60.6 2.2	138 57.2 3.7	417 32.5 11.1	581 28.6 15.6	789 22.1 21.1	58 98.2 1.5	3 173.0 0.1	1,644 15.8 44.0	1,779 16.0 47.6
	239 37.3 3.4	851 22.1 12.0	93 68.6 1.3	154 54.7 2.2	425 32.1 6.0	747 25.5 10.5	448 29.0 6.3	34 114.8 0.5	37 106.1 0.5	3,458 10.6 48.6	3,465 11.5 48.7

7.16 1988 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	GUIDANCE AND CONTROL EQUIPMENT											EMER LOC TRANS
	FLIGHT DIRECT	HSI	EFIS	FL MGT COMPTR	1 AXIS AUTPLT	2 AXIS AUTPLT	3 AXIS AUTPLT	AUTO LAND	FL DATA RECDER	NO EQUIP		
WEST VIRGINIA	ESTIMATED POPULATION	83	278	17	14	102	228	159	0	49	460	737
	% STD. ERROR	61.6	38.8	137.3	127.0	67.6	45.9	45.9	0.0	102.7	30.4	25.1
	% WITH CAPABILITY	6.7	22.3	1.4	1.1	8.2	18.3	12.8	0.0	3.9	36.9	59.1
WISCONSIN	ESTIMATED POPULATION	364	682	8	29	191	620	698	0	3	2,666	1,887
	% STD. ERROR	31.0	24.7	80.3	64.2	46.7	28.8	24.5	0.0	246.6	12.3	15.6
	% WITH CAPABILITY	7.4	13.8	0.2	0.6	3.9	12.6	14.1	0.0	0.1	54.1	38.3
WYOMING	ESTIMATED POPULATION	112	197	29	29	41	116	81	17	0	420	385
	% STD. ERROR	58.5	45.8	123.7	123.7	112.3	65.3	58.8	175.2	0.0	33.1	33.5
	% WITH CAPABILITY	12.5	21.9	3.2	3.2	4.5	12.9	9.0	1.9	0.0	46.6	42.7
PUERTO RICO	ESTIMATED POPULATION	17	15	1	0	9	24	18	4	0	32	41
	% STD. ERROR	136.6	131.1	717.7	0.0	185.0	144.7	136.2	131.7	0.0	123.5	95.6
	% WITH CAPABILITY	18.8	17.2	1.2	0.0	9.5	27.0	20.3	4.9	0.0	35.6	46.4
OTHER U.S. TERRITORIES	ESTIMATED POPULATION	9	23	0	3	16	14	36	3	0	47	54
	% STD. ERROR	150.4	119.5	0.0	215.2	170.2	185.9	100.7	275.3	0.0	97.2	89.7
	% WITH CAPABILITY	8.1	21.1	0.0	2.7	14.7	12.6	32.8	2.4	0.0	42.7	49.0
TOTAL	ESTIMATED POPULATION	23,947	45,144	3,846	4,920	22,389	36,660	43,496	2,478	1,700	122,820	115,490
	% STD. ERROR	2.9	2.3	9.5	8.3	4.1	2.9	1.9	12.9	14.4	1.1	1.3
	% WITH CAPABILITY	9.2	17.4	1.5	1.9	8.6	14.1	16.8	1.0	0.7	47.3	44.5

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.17 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY AIRCRAFT TYPE UNDER IFR
AND ACTIVE AIRCRAFT FLOWN UNDER IFR WITH MODE_S

PAGE 1 OF 2

AIRCRAFT TYPE	ESTIMATED NUMBER AIRCRAFT FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT ACTIVE FLOWN IFR	TOTAL HOURS FLOWN IFR	PERCENT STANDARD ERROR	PERCENT OF TOTAL HOURS	EST. NUMBER FLOWN IFR WITH MODE_S	PERCENT STANDARD ERROR	PERCENT AIRCRAFT FLOWN IFR WITH MODE_S
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS	3,943	11.9	6.6	167,293	11.9	2.1	839	27.0	21.3
1 ENG: 4+ SEATS	50,055	2.3	47.6	2,152,237	2.3	15.3	9,273	7.3	18.5
1 ENGINE: TOTAL	53,998	2.3	32.8	2,319,530	2.3	10.6	10,113	7.0	18.7
2 ENG: 1-6 SEATS	13,348	2.6	88.1	976,873	2.6	42.5	1,990	14.3	14.9
2 ENG: 7+ SEATS	7,483	2.5	99.1	970,035	2.5	49.5	1,515	17.9	20.2
2 ENGINE: TOTAL	20,831	1.9	91.8	1,946,908	1.8	45.7	3,505	11.2	16.8
PISTON: OTHER	103	31.5	100.0	7,994	31.5	36.0	69	47.8	66.8
PISTON: TOTAL	74,933	1.7	40.0	4,274,433	1.5	16.3	13,686	5.9	18.3
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS	4,481	0.6	100.0	1,192,270	0.6	76.5	823	17.5	18.4
2 ENG: 13+ SEATS	866	4.6	100.0	546,781	4.6	75.1	56	44.9	6.4
2 ENGINE: TOTAL	5,347	0.9	100.0	1,739,051	1.5	76.1	878	16.6	16.4
TURBOPROP: OTHER	72	22.3	35.7	11,082	22.3	13.2	32	55.7	44.2
TURBOPROP: TOTAL	5,419	0.9	100.0	1,750,133	1.5	73.8	910	16.1	16.8

7.17 1988 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY AIRCRAFT TYPE UNDER IFR
AND ACTIVE AIRCRAFT FLOWN UNDER IFR WITH MODE_S

PAGE 2 OF 2

AIRCRAFT TYPE	ESTIMATED NUMBER AIRCRAFT FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT ACTIVE FLOWN IFR	TOTAL HOURS FLOWN IFR	PERCENT STANDARD ERROR	PERCENT OF TOTAL HOURS	EST. NUMBER FLOWN IFR WITH MODE_S	PERCENT STANDARD ERROR	PERCENT AIRCRAFT FLOWN IFR WITH MODE_S
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	3,982	0.7	100.0	1,544,021	0.7	99.7	1,014	12.2	25.5
TURBOJET: OTHER	411	5.5	100.0	138,552	5.5	100.0	82	32.3	20.0
TURBOJET: TOTAL	4,394	0.8	100.0	1,682,572	0.8	100.0	1,096	11.5	24.9
FIXED WING: TOTAL	84,746	1.5	43.0	7,707,138	0.9	25.5	15,692	5.3	18.5
ROTORCRAFT									
PISTON	13	106.9	0.5	281	106.9	0.0	8	165.9	58.4
TURBINE	471	16.7	12.3	21,076	16.7	1.0	123	33.2	26.2
ROTORCRAFT: TOTAL	485	16.5	7.6	21,356	16.5	0.8	131	32.7	27.1
OTHER	89	86.5	1.3	1,913	86.5	0.3	0	0.0	0.0
TOTAL	85,320	1.5	40.6	7,730,408	0.9	23.0	15,823	5.3	18.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

CHAPTER VIII

NATIONAL AIRSPACE SYSTEM (NAS) CAPABILITY GROUPS BASED ON AVIONICS

Knowing the estimates of the number of aircraft containing individual pieces of avionics equipment (the basis of Chapter VII) does not provide enough information to determine an aircraft's overall ability to use the National Airspace System (NAS). In order to obtain a certain capability or privilege, an aircraft may be required to have several pieces of avionics gear. This led to the study of groups of avionics equipment, rather than individual pieces. Two avionics capability group classifications were developed, hierarchical and nonhierarchical. These two group categories provide a framework for the general aviation fleet, relating airborne avionics equipment groups to aircraft capability to perform in the NAS, and allows an analysis of the activity and characteristics of the general aviation fleet.

This chapter presents 11 tables on hierarchical and nonhierarchical statistics. Figures 8.1 and 8.2 list the hierarchical and nonhierarchical capability groups, respectively. Tables 8.1-8.5 consider hierarchical capability groups in five different categories, by: aircraft type, age of aircraft, total flight hour groups, primary use, and region of based aircraft, respectively. Tables 8.7-8.11 present nonhierarchical capability groups in the same five categories. The table in between these two groups, Table 8.6, is a comparison between nonhierarchical and hierarchical capability groups.

The hierarchical class consists of avionics groupings which comply with FAA requirements for use in various aspects of the NAS. FAA regulations address three basic capabilities--the capability: (1) to fly in different segments of the airspace, (2) to fly under visual flight rules (VFR) and instrument flight rules (IFR), and (3) to land at different classes of airports. These groups are called hierarchical because, in general, the avionics equipment and associated capabilities for one capability group are a subset of the avionics equipment and associated capabilities for the next higher group, and so on.

The second class of capability groups, nonhierarchical, consists of avionics groupings not required by FAA regulations, but which give an aircraft additional capability in the NAS. The nonhierarchical groups were formed by grouping together component pieces of avionics equipment which, as a whole, form a complete avionics system. A complete avionics system enables an aircraft to make full use of a landing, communications, or navigation system in the NAS. A note of caution: data on 4096 transponder equipment was not included in this

survey. The survey instrument was modified to collect data on Mode S, instead. Consequently, the hierarchical group definitions in the tables in this chapter differ from those given in Figures 8.1 and 8.2. One should not compare these tables directly with those from previous years. Where estimates of similar statistics involving 4096 transponders are desired, a reasonable curve fit to prior years' data should produce a good estimate.

Some observations derived from the tables in this chapter include:

- o The aircraft type increases in sophistication as the level of avionics increases (Tables 8.1 and 8.7).
- o Aircraft in the more sophisticated capability groups are newer aircraft on average than those in less sophisticated capability groups (Tables 8.2 and 8.8).
- o In the case of both hierarchical and nonhierarchical capability groups, aircraft containing more avionics equipment and capabilities are flown more hours on the average than those with smaller investments in avionics equipment (Tables 8.3 and 8.9).
- o The more sophisticated the hierarchical capability groups, the more the predominant uses shift from personal, to business/personal, to executive/business (Table 8.4).
- o As nonhierarchical capability groups become more sophisticated, the predominant primary uses of the aircraft change from personal, to business/personal, to business/executive. For example, executive aircraft alone comprise about 43 percent of the aircraft reporting both a radar altimeter and a complete ILS, yet executive aircraft compose only 4.2 percent of the fleet (Table 8.10).

Table 8.6 cross-tabulates the two capability groups and reveals the following about the general aviation fleet:

- o Approximately 27 percent of the general aviation aircraft has avionics equipment enabling them to fly above 18,000 feet in positive controlled airspace.
- o The percent of the general aviation fleet which cannot fly above 12,500 feet due only to avionics limitations is roughly 56 percent.

- o Table 8.6 indicates that those aircraft in the least sophisticated, nonhierarchical capability groups comprise the bulk of the least sophisticated, hierarchical capability groups. Of the percent of aircraft possessing no nonhierarchical capability group equipment (i.e., no regulatory electronics), approximately 84 percent fall into the hierarchical capability groups 1, 2, and 3. Similarly, those aircraft in the most sophisticated nonhierarchical capability groups are also in the most sophisticated hierarchical capability groups. For example, 89 percent of the aircraft possessing a complete Instrument Landing System (ILS) and a radar altimeter fall into the hierarchical capability group 8.
- o LORAN-C and Omega, two types of Long Range Navigation (LRNAV) equipment, have been added to the avionics section since the 1984 survey. These additions have had a strong impact on the reported total number of aircraft with LRNAV equipment. In 1983, only 9,393 aircraft (3.6 percent of the total population) reported any type of Long Range Navigation equipment. In 1986, this number jumped to 47,210 (17.6 percent of the population). Last year, this number rose to 61,981 (23 percent of the population), and this year, the number of aircraft with LRNAV equipment rose yet again to 72,412 (27.9 percent of the population). This increase most likely reflects both the specific addition of LORAN-C and Omega to the survey form, as well as a rise in the number of aircraft containing LORAN-C receivers.

Figure 8.1
HIERARCHICAL CAPABILITY GROUPS

GROUP	AVIONICS	CAPABILITIES
1	No Regulatory Avionics	<p>A. • Up to and including 12,500 feet Mean Sea Level (MSL).</p> <ul style="list-style-type: none"> • Gliders —Up to and including 18,000 feet MSL. • ADF—Colored airways below 12,500 feet MSL. • VOR or RNAV—VOR airways below 12,500 feet MSL. • RNAV—Low Altitude RNAV airways below 12,500 feet MSL. <p>B. • VFR flight, day and night.</p> <p>C. • Uncontrolled airports.</p>
2	Two-way Communications	<p>A. • Up to and including 12,500 feet MSL.</p> <ul style="list-style-type: none"> • Gliders—Up to and including 18,000 feet MSL. <p>B. • VFR flight, day and night.</p> <p>C. • Non-TCA controlled airports.</p> <ul style="list-style-type: none"> • Group III TCAs. • Helicopters with 4096 code transponders Group III TCAs. • All Helicopters—Group I and II TCAs below 1,000 feet Above Ground Level (AGL). <p>Note: Air taxis with navigation system and transponder: Group II TCAs.</p> <p>Air taxis with navigation system, transponder and altitude reporting: Group I TCAs and non-positive controlled airspace.</p> <p>Air taxis with navigation system, DME, transponder and altitude reporting: Group I TCAs and positive controlled airspace.</p>
3	Two-way Communications Two Systems—Air Taxis Very High Frequency Omni- Directional Radio Range (VOR) or Automatic Direction Finder (ADF) or Area Navigational Equipment RNAV	<p>A. • Up to and including 12,500 feet MSL.</p> <ul style="list-style-type: none"> • Gliders—Up to and including 18,000 feet MSL. • ADF—Colored airways below 12,500 feet MSL. • VOR or RNAV—VOR airways below 12,500 feet MSL. • RNAV—Low altitude RNAV airways below 12,500 feet MSL. <p>B. • IFR flight</p> <p>C. • Non-TCA controlled airways.</p> <ul style="list-style-type: none"> • Group III TCAs. • Helicopters with 4096 transponders—Group II TCAs. • All helicopters—Group I and II TCAs below 1,000 feet AGL.

Figure 8.1
HIERARCHICAL CAPABILITY GROUPS (Cont.)

GROUP	AVIONICS	CAPABILITIES
4	Two-way Communications Two Systems—Air Taxis 4096 Code Transponder VOR or RNAV	<p>A. • Up to and including 12,500 feet MSL. • Gliders—Up to and including 18,000 feet MSL. • VOR airways below 12,500 feet MSL. • RNAV—Low altitude RNAV airways below 12,500 feet MSL.</p> <p>B. • IFR flight.</p> <p>C. • Non-TCA controlled airports. • Group II TCAs. • Helicopters—Group I TCAs below 1,000 feet AGL.</p>
5	4096 Code Transponder Altitude Encoding Equipment	<p>A. • Non-positive controlled airspace.</p> <p>B. • VFR flight, day and night.</p> <p>C. • Uncontrolled airports. • Group III TCAs.</p>
6	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment	<p>A. • Non-positive controlled airspace.</p> <p>B. • VFR flight, day and night.</p> <p>C. • Non-TCA controlled airports. • Group III TCAs. • Helicopters—Group I TCAs.</p>
7	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment VOR	<p>A. • Non-positive controlled airspace. • VOR airways.</p> <p>B. • IFR flight.</p> <p>C. • Group I TCAs.</p>
8	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment VOR and/or RNAV Distance Measuring Equipment (DME)	<p>A. • Positive controlled airspace. • Jet routes. • RNAV—RNAV routes.</p> <p>B. • IFR flight.</p> <p>C. • Group I TCAs.</p>

Figure 8.2
NONHIERARCHICAL CAPABILITY GROUPS

GROUP	AVIONICS	CAPABILITIES
1	Localizer (LOC)	Partial use of airport Instrument Landing System (ILS).
2	LOC Marker Beacon (MB)	Partial use of airport ILS.
3	LOC MB Glide Slope (GS)	Full use of airport ILS.
4	Long Range Navigation (LRNAV) (LORAN, Omega or other) VFR only, ENF	Area navigation over long distances and large bodies of water.
5	Radar Altimeter (RA)	Determination of altitude above level of terrain.
6	Microwave Landing System (MLS)	More accurate and flexible landing approaches, especially at airports with mountains and large buildings nearby.
7	MLS Instrument Landing System (ILS)	Backup landing systems.
8	LRNAV MLS	Sophisticated navigational and landing capabilities.

8.1 1988 GENERAL AVIATION AIRCRAFT
BY AIRCRAFT TYPE AND HIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 3

HIERARCHICAL CAPABILITY GROUPS

AIRCRAFT TYPE	1	2	3	4	5	6	7	8	TOTAL
FIXED WING - PISTON									
SINGLE ENGINE 1-3 SEATS	ESTIMATE	8,709	24,372	7,083	389	728	8,617	1,747	84,531
	% STD. ERROR	2.4	3.4	7.5	34.8	25.5	6.6	15.5	0.0
	ROW %	38.9	28.8	8.4	0.5	0.9	10.2	2.1	32.6
	COLUMN %	60.1	50.5	31.8	7.5	25.4	22.0	2.5	
SINGLE ENGINE 4+ SEATS	ESTIMATE	1,765	21,372	13,939	3,201	526	27,489	40,288	118,382
	% STD. ERROR	6.3	4.0	5.4	12.2	28.3	3.6	2.6	0.0
	ROW %	8.3	18.1	11.8	2.7	0.4	23.2	34.0	45.6
	COLUMN %	17.9	44.2	62.5	61.5	18.4	70.1	57.7	
TWO ENGINES 1-6 SEATS	ESTIMATE	1,141	988	660	680	104	1,268	12,599	17,511
	% STD. ERROR	17.1	18.4	22.8	22.2	57.1	15.9	2.6	0.0
	ROW %	6.5	5.6	3.8	3.9	0.6	7.2	71.9	6.7
	COLUMN %	2.1	2.0	3.0	13.1	3.6	3.2	18.0	
TWO ENGINES 7+ SEATS	ESTIMATE	970	417	101	517	572	448	5,495	8,806
	% STD. ERROR	18.5	27.6	60.1	36.0	28.0	32.8	5.5	0.0
	ROW %	11.0	4.7	1.1	5.9	6.5	5.1	62.4	3.4
	COLUMN %	1.8	0.9	0.5	9.9	20.0	1.1	7.9	
PISTON OTHER	ESTIMATE	91	17	24	0	33	6	8	181
	% STD. ERROR	22.2	76.6	65.5	0.0	53.1	119.6	125.7	0.0
	ROW %	50.3	9.4	13.3	0.0	18.2	3.3	4.4	0.1
	COLUMN %	0.2	0.0	0.1	0.0	1.2	0.0	0.0	
FIXED WING - TURBOPRO									
2 ENGINES 1-12 SEATS	ESTIMATE	258	44	33	148	58	16	3,986	4,543
	% STD. ERROR	31.8	48.5	120.5	41.9	76.6	104.7	2.9	0.0
	ROW %	5.7	1.0	0.7	3.3	1.3	0.4	87.7	1.8
	COLUMN %	0.5	0.1	0.1	2.8	2.0	0.0	5.7	

8.1 1988 GENERAL AVIATION AIRCRAFT
BY AIRCRAFT TYPE AND HIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 3

HIERARCHICAL CAPABILITY GROUPS

AIRCRAFT TYPE	1	2	3	4	5	6	7	8	TOTAL
2 ENGINES 13+ SEATS	ESTIMATE % STD. ERROR ROW % COLUMN %	0 0.0 0.0 0.0	2 354.3 0.2 0.0	4 97.5 0.4 0.0	3 293.9 0.3 0.1	7 77.6 0.7 0.2	4 194.6 0.4 0.0	881 4.7 87.2 1.3	1,010 0.0 0.4
TURBOPROP OTHER	ESTIMATE % STD. ERROR ROW % COLUMN %	20 44.4 8.7 0.1	16 63.1 7.0 0.0	4 162.2 1.7 0.0	0 0.0 0.0 0.0	3 196.3 1.3 0.1	44 37.9 19.1 0.1	64 21.2 27.8 0.1	230 0.0 0.1
FIXED WING - TURBOJET	ESTIMATE % STD. ERROR ROW % COLUMN %	0 0.0 0.0 0.0	12 96.3 0.3 0.0	57 69.6 1.4 0.3	109 42.2 2.7 2.1	50 73.0 1.2 1.7	68 47.9 1.7 0.2	3,429 3.2 84.4 4.9	4,061 0.0 1.6
2 ENGINES	ESTIMATE % STD. ERROR ROW % COLUMN %	2 203.0 0.4 0.0	10 80.0 2.0 0.0	0 0.0 0.0 0.0	4 145.2 0.8 0.1	10 75.7 2.0 0.3	22 53.2 4.5 0.1	347 6.6 70.2 0.5	494 0.0 0.2
TURBOJET OTHER	ESTIMATE % STD. ERROR ROW % COLUMN %	2 203.0 0.4 0.0	10 80.0 2.0 0.0	0 0.0 0.0 0.0	4 145.2 0.8 0.1	10 75.7 2.0 0.3	22 53.2 4.5 0.1	347 6.6 70.2 0.5	494 0.0 0.2
ROTORCRAFT	ESTIMATE % STD. ERROR ROW % COLUMN %	2 203.0 0.4 0.0	10 80.0 2.0 0.0	0 0.0 0.0 0.0	4 145.2 0.8 0.1	10 75.7 2.0 0.3	22 53.2 4.5 0.1	347 6.6 70.2 0.5	494 0.0 0.2
PISTON	ESTIMATE % STD. ERROR ROW % COLUMN %	1,543 11.9 28.9 9.1	337 24.4 6.3 0.7	35 81.9 0.7 0.2	20 120.9 0.4 0.4	250 24.7 4.7 8.7	354 30.5 6.6 0.9	17 107.7 0.3 0.0	5,334 0.0 2.1
TURBINE	ESTIMATE % STD. ERROR ROW % COLUMN %	489 21.3 11.0 0.9	553 22.2 12.5 1.1	347 28.6 7.8 1.6	135 32.7 3.0 2.6	499 22.9 11.3 17.4	758 17.3 17.1 1.9	974 13.8 22.0 1.4	4,434 0.0 1.7

8.1 1988 GENERAL AVIATION AIRCRAFT
BY AIRCRAFT TYPE AND HIERARCHICAL CAPABILITY GROUPS

PAGE 3 OF 3

AIRCRAFT TYPE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
OTHER AIRCRAFT	5,690	3,912	169	13	2	25	100	7
	5.0	7.3	46.8	34.8	92.2	114.9	53.8	181.5
	57.4	39.4	1.7	0.1	0.0	0.3	1.0	0.1
	10.4	23.0	0.3	0.1	0.0	0.9	0.3	0.0
								9,917
								0.0
								3.8
								TOTAL
ALL AIRCRAFT	54,726	16,990	48,309	22,300	5,208	2,866	39,195	69,840
	2.0	4.3	2.5	4.2	9.4	11.4	3.0	1.7
	21.1	6.5	18.6	8.6	2.0	1.1	15.1	26.9
								259,434

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.1

- 1 - NO REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 6 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.2 1988 GENERAL AVIATION AIRCRAFT
BY AGE OF AIRCRAFT AND HIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

AGE OF AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
0 - 4 YEARS	ESTIMATE	3,688	2,443	656	594	649	2,746	9,066
	% STD. ERROR	7.5	10.4	25.3	25.4	24.2	12.4	6.0
	ROW % COLUMN %	25.7 12.5	13.8 21.7	9.1 5.1	2.2 11.4	2.4 22.6	10.3 7.0	34.0 13.0
5 - 9 YEARS	ESTIMATE	5,327	2,431	3,535	1,616	788	3,824	15,341
	% STD. ERROR	8.9	12.7	11.7	17.2	23.8	11.2	4.9
	ROW % COLUMN %	15.4 9.7	7.0 14.3	10.2 7.3	4.7 7.2	2.3 27.5	11.1 9.8	44.4 22.0
10 - 14 YEARS	ESTIMATE	7,943	2,441	7,505	5,416	720	9,402	18,552
	% STD. ERROR	6.7	12.6	7.7	9.3	23.6	6.8	4.5
	ROW % COLUMN %	14.9 14.5	4.6 14.4	14.1 15.5	10.2 24.3	1.4 25.1	17.6 24.0	34.8 26.6
15 - 19 YEARS	ESTIMATE	4,072	1,254	6,299	3,532	171	5,344	9,564
	% STD. ERROR	10.0	16.3	8.5	11.3	47.5	9.3	6.6
	ROW % COLUMN %	13.3 7.4	4.1 7.4	20.6 13.0	11.5 15.8	0.6 6.0	17.4 13.6	31.2 13.7
20 - 24 YEARS	ESTIMATE	5,445	1,111	10,014	5,017	150	7,587	10,013
	% STD. ERROR	8.8	19.0	6.7	9.7	49.3	7.7	6.2
	ROW % COLUMN %	13.7 9.9	2.8 6.5	25.1 20.7	12.6 22.5	0.4 5.2	19.0 19.4	25.1 14.3
25 - 29 YEARS	ESTIMATE	2,720	723	4,459	2,727	206	3,509	3,907
	% STD. ERROR	11.9	24.2	9.8	13.2	46.4	11.3	9.9
	ROW % COLUMN %	14.6 5.0	3.9 4.3	23.9 9.2	14.6 12.2	1.1 7.2	18.8 9.0	21.0 5.6
30 - 34 YEARS	ESTIMATE	2,917	847	4,255	1,789	149	3,331	2,292
	% STD. ERROR	12.1	23.4	9.7	16.0	54.7	11.9	13.3
	ROW % COLUMN %	18.3 5.3	5.3 5.0	26.7 8.8	11.2 8.0	0.9 5.2	20.9 8.5	14.4 3.3
TOTAL								
								26,701
								3.4
								10.3
								34,557
								3.2
								13.3
								53,291
								2.5
								20.5
								30,626
								3.5
								11.8
								39,861
								3.0
								15.4
								18,618
								4.4
								7.2
								15,908
								4.6
								6.1

8.2 1988 GENERAL AVIATION AIRCRAFT
BY AGE OF AIRCRAFT AND HIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

AGE OF AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
35+ YEARS	18,425	4,757	10,356	1,637	30	143	3,416	1,106
	3.0	8.3	4.6	13.4	73.1	36.9	9.1	16.9
	46.2	11.9	26.0	4.1	0.1	0.4	8.6	2.8
	33.7	28.0	21.4	7.3	0.6	5.0	8.7	1.6
								15.4
TOTAL	54,726	16,990	48,309	22,300	5,208	2,866	39,195	69,840
	2.0	4.3	2.5	4.2	9.4	11.4	3.0	1.7
	21.1	6.5	18.6	8.6	2.0	1.1	15.1	26.9
								259,434

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.2

- 1 - NO REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 6 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.3 1988 GENERAL AVIATION AIRCRAFT
BY TOTAL FLIGHT HOUR GROUPS AND HIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

TOTAL FLIGHT HOUR GROUPS		HIERARCHICAL CAPABILITY GROUPS							
		1	2	3	4	5	6	7	8
1 - 49 HOURS	ESTIMATE	10,942	4,932	15,601	7,071	503	360	7,746	7,148
	% STD. ERROR	5.6	8.6	5.1	8.1	29.6	30.6	7.5	7.6
	ROW %	20.1	9.1	28.7	13.0	0.9	0.7	14.3	13.2
50 - 99 HOURS	ESTIMATE	4,843	3,426	10,295	5,699	1,304	424	11,591	15,784
	% STD. ERROR	9.1	10.3	6.4	8.9	20.5	31.6	6.2	5.1
	ROW %	9.1	6.4	19.3	10.7	2.4	0.8	21.7	29.6
100 - 149 HOURS	ESTIMATE	8.8	20.2	21.3	25.6	25.0	14.8	29.6	22.6
	% STD. ERROR	8.8	20.2	21.3	25.6	25.0	14.8	29.6	22.6
	ROW %	8.8	20.2	21.3	25.6	25.0	14.8	29.6	22.6
150 - 199 HOURS	ESTIMATE	2,884	1,639	4,719	3,173	791	401	6,672	14,289
	% STD. ERROR	12.0	15.7	9.6	12.2	23.3	32.9	8.2	5.4
	ROW %	8.3	4.7	13.7	9.2	2.3	1.2	19.3	41.3
200 - 249 HOURS	ESTIMATE	5.3	9.6	9.8	14.2	15.2	14.0	17.0	20.5
	% STD. ERROR	5.3	9.6	9.8	14.2	15.2	14.0	17.0	20.5
	ROW %	5.3	9.6	9.8	14.2	15.2	14.0	17.0	20.5
250 - 299 HOURS	ESTIMATE	1,399	705	2,234	1,068	371	170	3,390	7,709
	% STD. ERROR	17.2	23.3	14.4	20.6	34.7	50.3	11.8	7.5
	ROW %	8.2	4.1	13.1	6.3	2.2	1.0	19.9	45.2
300 - 349 HOURS	ESTIMATE	2.6	4.1	4.6	4.8	7.1	5.9	8.6	11.0
	% STD. ERROR	2.6	4.1	4.6	4.8	7.1	5.9	8.6	11.0
	ROW %	2.6	4.1	4.6	4.8	7.1	5.9	8.6	11.0
350 - 399 HOURS	ESTIMATE	1,558	585	1,556	504	379	106	2,304	6,052
	% STD. ERROR	16.4	25.6	17.5	30.7	38.9	60.2	14.2	8.3
	ROW %	11.9	4.5	11.9	3.9	2.9	0.8	17.7	46.4
400 - 449 HOURS	ESTIMATE	2.8	3.4	3.2	2.3	7.3	3.7	5.9	8.7
	% STD. ERROR	2.8	3.4	3.2	2.3	7.3	3.7	5.9	8.7
	ROW %	2.8	3.4	3.2	2.3	7.3	3.7	5.9	8.7
450 - 499 HOURS	ESTIMATE	790	210	625	290	271	67	905	3,559
	% STD. ERROR	21.7	41.9	27.4	41.4	45.9	75.4	23.0	10.9
	ROW %	11.8	3.1	9.3	4.3	4.0	1.0	13.5	53.0
500 - 549 HOURS	ESTIMATE	1.4	1.2	1.3	1.3	5.2	2.3	2.3	5.1
	% STD. ERROR	1.4	1.2	1.3	1.3	5.2	2.3	2.3	5.1
	ROW %	1.4	1.2	1.3	1.3	5.2	2.3	2.3	5.1
TOTAL									

8.3 1988 GENERAL AVIATION AIRCRAFT
BY TOTAL FLIGHT HOUR GROUPS AND HIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

TOTAL FLIGHT HOUR GROUPS	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
								TOTAL
300 - 349 HOURS	629 ESTIMATE 24.9 % STD. ERROR 10.3 ROW % 1.1 COLUMN %	493 29.8 8.1 2.9	791 25.9 12.9 1.6	374 37.0 6.1 1.7	257 41.6 4.2 4.9	86 57.8 1.4 3.0	907 22.9 14.8 2.3	2,575 12.0 42.1 3.7
								6,112 8.3 2.4
350 - 399 HOURS	566 ESTIMATE 25.3 % STD. ERROR 12.3 ROW % 1.0 COLUMN %	152 46.9 3.3 0.9	408 35.2 8.9 0.8	258 47.0 5.6 1.2	196 41.4 4.3 3.8	292 43.2 6.3 10.2	885 22.9 19.2 2.3	1,852 13.7 40.2 2.7
								4,610 9.3 1.8
400 - 449 HOURS	680 ESTIMATE 25.9 % STD. ERROR 14.2 ROW % 1.2 COLUMN %	222 41.7 4.6 1.3	580 30.0 12.1 1.2	289 41.3 6.0 1.3	167 56.7 3.5 3.2	307 40.6 6.4 10.7	452 32.1 9.4 1.2	2,091 14.3 43.7 3.0
								4,788 9.7 1.8
450+ HOURS	1,531 ESTIMATE 14.5 % STD. ERROR 10.3 ROW % 2.8 COLUMN %	937 17.4 6.3 5.5	2,141 14.7 14.4 4.4	1,168 20.6 7.9 5.2	350 35.0 2.4 6.7	619 23.1 4.2 21.6	2,433 14.5 16.4 6.2	5,667 7.1 38.2 8.1
								14,846 4.7 5.7
INACTIVE	28,859 ESTIMATE 3.1 % STD. ERROR 57.7 ROW % 52.7 COLUMN %	3,538 10.8 7.1 20.8	9,355 6.4 18.7 19.4	2,530 13.3 5.1 11.3	273 39.8 0.5 5.2	59 50.8 0.1 2.1	2,138 13.5 4.3 5.5	3,264 11.1 6.5 4.7
								50,016 2.3 19.3
TOTAL	54,726 ESTIMATE 2.0 % STD. ERROR 21.1 ROW %	16,990 4.3 6.5	48,309 2.5 18.6	22,300 4.2 8.6	5,208 9.4 2.0	2,866 11.4 1.1	39,195 3.0 15.1	69,840 1.7 26.9
								259,434

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.3

- 1 - NC REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 6 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.4 1988 GENERAL AVIATION AIRCRAFT
BY PRIMARY USE AND HIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

PRIMARY USE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
EXECUTIVE	499	31	248	139	428	127	356	9,054
	ESTIMATE	59.1	38.0	43.5	26.4	54.0	31.9	4.4
	% STD. ERROR	0.3	2.3	1.3	3.9	1.2	3.3	83.2
BUSINESS	1,628	582	2,857	2,811	1,719	117	4,955	20,249
	ESTIMATE	26.2	12.4	12.9	17.3	29.2	9.7	4.1
	% STD. ERROR	1.7	8.2	8.1	4.9	0.3	14.2	58.0
PERSONAL	15,409	8,252	28,561	13,830	1,730	953	25,334	28,486
	ESTIMATE	4.4	3.5	5.5	17.0	21.3	3.9	3.6
	% STD. ERROR	12.6	6.7	23.3	11.3	0.8	20.7	23.2
INSTRUCTIONAL	1,792	584	5,134	2,203	381	115	3,553	2,912
	ESTIMATE	15.8	9.4	15.2	35.6	53.5	11.6	12.6
	% STD. ERROR	10.7	3.5	30.8	2.3	0.7	21.3	17.5
AERIAL APPLICATION	4,856	1,217	262	35	47	14	273	337
	ESTIMATE	5.1	34.0	98.5	54.5	148.3	34.6	36.9
	% STD. ERROR	69.0	17.3	3.7	0.7	0.2	3.9	4.8
AERIAL OBSERVATION	561	892	760	345	133	67	1,000	1,000
	ESTIMATE	27.4	24.8	39.0	54.2	71.2	21.2	20.2
	% STD. ERROR	11.8	18.7	16.0	2.8	1.4	21.0	21.0
TOTAL								1.8

**8.4 1988 GENERAL AVIATION AIRCRAFT
BY PRIMARY USE AND HIERARCHICAL CAPABILITY GROUPS**

PAGE 2 OF 2

PRIMARY USE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
OTHER WORK	ESTIMATE	220	408	445	116	0	145	316
	% STD. ERROR	43.7	28.0	32.5	59.4	0.0	50.1	38.5
	ROW %	12.0	22.2	24.2	6.3	0.0	7.9	17.2
COMPUTER AIR CARRIER	COLUMN %	0.4	2.4	0.9	0.5	0.0	5.1	0.8
	ESTIMATE	29	18	103	95	12	0	22
	% STD. ERROR	135.5	53.6	39.7	66.7	135.0	0.0	124.8
AIR TAXI	ROW %	3.0	1.8	10.6	9.8	1.2	0.0	2.3
	COLUMN %	0.1	0.1	0.2	0.4	0.2	0.0	0.1
	ESTIMATE	396	656	234	167	87	1,088	890
OTHER USE	% STD. ERROR	31.3	22.4	44.1	46.5	100.0	19.6	21.5
	ROW %	6.1	10.1	3.6	2.6	1.3	16.7	13.7
	COLUMN %	0.7	3.9	0.5	0.7	1.7	38.0	2.3
INACTIVE	ESTIMATE	638	798	547	214	59	220	690
	% STD. ERROR	23.8	20.6	25.7	40.2	84.1	31.2	23.5
	ROW %	15.6	19.6	13.4	5.2	1.4	5.4	16.9
TOTAL	COLUMN %	1.2	4.7	1.1	1.0	1.1	7.7	1.8
	ESTIMATE	28,859	3,538	9,355	2,530	273	59	2,138
	% STD. ERROR	3.1	10.8	6.4	13.3	39.8	50.8	13.5
TOTAL	ROW %	57.7	7.1	18.7	5.1	0.5	0.1	4.3
	COLUMN %	52.7	20.8	19.4	11.3	5.2	2.1	5.5
	ESTIMATE	54,726	16,990	48,309	22,300	5,208	2,866	39,195
TOTAL	% STD. ERROR	2.0	4.3	2.5	4.2	9.4	11.4	3.0
	ROW %	21.1	6.5	18.6	8.6	2.0	1.1	15.1
	COLUMN %							

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.4

- 1 - NO REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 6 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.5 1988 GENERAL AVIATION AIRCRAFT
BY REGION OF BASED AIRCRAFT AND HIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

REGION OF BASED AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8 TOTAL
ALASKAN	ESTIMATE	1,444	3,761	990	47	40	378	672
	% STD. ERROR	17.4	10.1	22.1	96.4	88.1	34.8	26.3
	ROW %	17.2	16.3	42.5	0.5	0.5	4.3	7.6
	COLUMN %	2.8	8.5	7.8	4.4	1.4	1.0	1.0
CENTRAL	ESTIMATE	3,536	2,858	1,386	248	140	2,124	3,453
	% STD. ERROR	10.8	21.0	18.5	44.1	53.2	15.5	11.2
	ROW %	23.9	7.0	9.4	1.7	0.9	14.4	23.4
	COLUMN %	6.5	6.1	5.9	6.2	4.9	5.4	4.9
EASTERN	ESTIMATE	5,643	1,696	2,608	799	390	4,764	8,947
	% STD. ERROR	8.4	16.1	13.4	26.0	32.0	10.0	6.8
	ROW %	18.7	5.6	8.6	2.6	1.3	15.8	29.6
	COLUMN %	10.3	10.0	11.1	15.3	13.6	12.2	12.8
EUROPEAN OFFICE	ESTIMATE	0	0	0	0	0	0	0
	% STD. ERROR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	ROW %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	COLUMN %	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GREAT LAKES	ESTIMATE	9,472	2,664	10,825	3,872	317	6,449	12,018
	% STD. ERROR	6.3	13.1	6.5	11.2	39.8	8.6	5.9
	ROW %	20.6	5.8	23.5	8.4	0.7	14.0	26.1
	COLUMN %	17.3	15.7	22.4	17.4	11.1	16.5	17.2
NEW ENGLAND	ESTIMATE	2,057	793	2,113	659	297	2,122	2,894
	% STD. ERROR	14.3	23.8	14.8	27.3	40.1	15.4	12.7
	ROW %	18.5	7.1	19.0	5.9	2.7	19.1	26.0
	COLUMN %	3.8	4.7	4.4	3.0	10.4	5.4	4.1

8.5 1988 GENERAL AVIATION AIRCRAFT
BY REGION OF BASED AIRCRAFT AND HIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

REGION OF BASED AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
NORTHWEST MOUNTAIN	ESTIMATE & STD. ERROR ROW & COLUMN &	2,121 14.0 8.7 12.5	4,817 9.8 19.8 10.0	2,407 14.5 9.9 10.8	378 33.8 1.6 7.3	392 34.3 1.6 13.7	4,377 10.3 18.0 11.2	5,453 9.2 22.4 7.8
		4,362 9.6 17.9 8.0						24,307 4.1 9.4
SOUTHERN	ESTIMATE & STD. ERROR ROW & COLUMN &	2,319 13.2 5.6 13.6	7,199 8.0 17.3 14.9	3,704 11.3 8.9 16.6	983 21.5 2.4 18.9	317 31.6 0.8 11.1	6,992 8.2 16.8 17.8	13,059 5.5 31.3 18.7
		7,093 7.7 17.0 13.0						41,667 3.0 16.1
SOUTHWESTERN	ESTIMATE & STD. ERROR ROW & COLUMN &	2,063 13.4 5.8 12.1	6,042 8.8 17.0 12.5	3,383 12.1 9.5 15.2	975 24.0 2.7 18.7	326 37.6 0.9 11.4	4,424 10.3 12.5 11.3	10,658 6.2 30.0 15.3
		7,596 7.0 21.4 13.9						35,468 3.3 13.7
WESTERN-PACIFIC	ESTIMATE & STD. ERROR ROW & COLUMN &	3,807 10.4 8.1 22.4	6,715 8.1 14.3 13.9	3,624 11.4 7.7 16.3	1,052 21.2 2.2 20.2	717 22.5 1.5 25.0	9,204 6.9 19.6 23.5	14,177 5.4 30.2 20.3
		7,660 7.1 16.3 14.0						46,956 2.8 18.1
TOTAL	ESTIMATE & STD. ERROR ROW & COLUMN &	16,990 4.3 6.5	48,309 2.5 18.6	22,300 4.2 8.6	5,208 9.4 2.0	2,866 11.4 1.1	39,195 3.0 15.1	69,840 1.7 26.9
		54,726 2.0 21.1						259,434

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.5

- 1 - NO REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 6 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.6 1988 GENERAL AVIATION AIRCRAFT
BY NONHIERARCHICAL AND HIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

	HIERARCHICAL CAPABILITY GROUPS								TOTAL
	1	2	3	4	5	6	7	8	
NONHIERARCHICAL									
LOCALIZER	268 43.1 2.3 0.5	414 34.6 3.6 2.4	3,815 10.5 33.0 7.9	2,344 13.9 20.3 10.5	22 99.7 0.2 0.4	60 85.7 0.5 2.1	3,922 10.6 33.9 10.0	729 23.7 6.3 1.0	11,575 6.0 4.5
LOCALIZER, MARKER BEACON	209 47.6 2.5 0.4	0 0.0 0.0 0.0	1,646 16.8 19.9 3.4	1,172 20.6 14.1 5.3	123 59.2 1.5 2.4	238 46.0 2.9 8.3	2,615 13.3 31.6 6.7	2,284 13.2 27.6 3.3	8,288 7.3 3.2
LOCALIZER, MARKER BEACON, GLIDE SLOPE	1,057 20.7 1.2 1.9	18 163.4 0.0 0.1	7,463 7.8 8.3 15.4	6,620 8.2 7.3 29.7	3,371 12.2 3.7 64.7	602 26.5 0.7 21.0	21,520 4.3 23.9 54.9	49,574 2.4 54.9 71.0	90,226 1.4 34.8
LOCALIZER, MARKER BEACON, GLIDE SLOPE, RADAR ALTIMETER	303 34.6 1.8 0.6	0 0.0 0.0 0.0	365 30.8 2.2 0.8	118 48.9 0.7 0.5	689 20.8 4.2 13.2	222 47.5 1.3 7.7	342 31.0 2.1 0.9	14,445 3.6 87.6 20.7	16,485 3.3 6.4
LONG RANGE NAV (INCLUDES OMEGA, LORAN-C)	1,946 14.9 2.7 3.6	1,768 14.9 2.4 10.4	7,708 7.4 10.6 16.0	4,912 9.4 6.8 22.0	2,340 14.2 3.2 44.9	1,277 17.0 1.8 44.6	18,397 4.7 25.4 46.9	34,063 3.0 47.0 48.8	72,412 1.9 27.9
RADAR ALTIMETER	704 24.0 3.7 1.3	43 95.3 0.2 0.3	848 21.9 4.4 1.8	317 34.0 1.7 1.4	890 19.2 4.7 17.1	255 43.6 1.3 8.9	452 26.7 2.4 1.2	15,553 3.5 81.6 22.3	19,062 3.2 7.3

8.6 1988 GENERAL AVIATION AIRCRAFT
BY NONHIERARCHICAL AND HIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

	HIERARCHICAL CAPABILITY GROUPS								TOTAL
	1	2	3	4	5	6	7	8	
NONHIERARCHICAL									
MICROWAVE LANDING SYSTEM	490 29.8 21.6 0.9	53 46.8 2.3 0.3	331 37.3 14.6 0.7	193 43.5 8.5 0.9	19 79.3 0.8 0.4	42 85.5 1.9 1.5	134 39.4 5.9 0.3	1,007 20.3 44.4 1.4	2,269 13.1 0.9
LOCALIZER, MARKER BEACON, GLIDE SLOPE, MICROWAVE LANDING SYSTEM	13 94.5 1.7 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	29 104.4 3.7 0.1	0 0.0 0.0 0.0	10 49.1 1.3 0.3	33 45.8 4.3 0.1	691 23.9 89.0 1.0	776 21.7 0.3
LONG RANGE NAV., MICROWAVE LANDING SYSTEM	428 31.5 28.8 0.8	21 66.8 1.4 0.1	330 37.3 22.2 0.7	157 47.5 10.6 0.7	19 79.3 1.3 0.4	32 111.2 2.2 1.1	33 45.8 2.2 0.1	463 28.4 31.2 0.7	1,484 16.2 0.6
NO REGULATORY AVIONICS	51,512 2.0 44.8 94.1	14,893 4.5 13.0 87.7	30,455 3.3 26.5 63.0	9,224 6.9 8.0 41.4	359 34.9 0.3 6.9	716 21.5 0.6 25.0	6,212 8.4 5.4 15.8	1,540 17.8 1.3 2.2	114,909 1.1 44.3
ALL AIRCRAFT	54,726 2.0 21.1	16,990 4.3 6.5	48,309 2.5 18.6	22,300 4.2 8.6	5,208 9.4 2.0	2,866 11.4 1.1	39,195 3.0 15.1	69,840 1.7 26.9	259,434

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.6

- 1 - NO REGULATORY AVIONICS.
- 2 - TWO-WAY COMMUNICATIONS.
- 3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.
- 4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY; VOR OR RNAV.
- 5 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 6 - TWO-WAY COMMUNICATIONS, MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.
- 7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.
- 8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.7 1988 GENERAL AVIATION AIRCRAFT
BY AIRCRAFT TYPE AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS										NO GROUP TOTAL
	1	2	3	4	5	6	7	8			
FIXED WING - PISTON											
SINGLE ENGINE 1-3 SEATS	ESTIMATE	4,915	1,346	4,712	9,789	598	183	2	112	66,811	84,531
	% STD. ERROR	9.1	18.4	9.0	6.2	27.8	50.6	494.5	63.9	1.1	0.0
	ROW %	5.8	1.6	5.6	11.6	0.7	0.2	0.0	0.1	79.0	0.0
	COLUMN %	42.5	16.2	5.2	13.5	3.1	8.1	0.3	7.5	58.1	32.6
SINGLE ENGINE 4+ SEATS	ESTIMATE	5,744	5,352	68,083	40,963	2,889	1,109	358	703	29,044	118,382
	% STD. ERROR	8.6	9.3	1.6	2.7	12.7	20.6	35.4	26.5	3.2	0.0
	ROW %	4.9	4.5	57.5	34.6	2.4	0.9	0.3	0.6	24.5	0.0
	COLUMN %	49.6	64.6	75.5	56.6	15.2	48.9	46.1	47.4	25.3	45.6
TWO ENGINES 1-6 SEATS	ESTIMATE	293	670	11,564	7,758	3,277	410	171	239	1,479	17,511
	% STD. ERROR	35.1	23.1	3.3	5.2	9.2	32.3	52.3	42.6	14.5	0.0
	ROW %	1.7	3.8	66.0	44.3	18.7	2.3	1.0	1.4	8.4	0.0
	COLUMN %	2.5	8.1	12.8	10.7	17.2	18.1	22.0	16.1	1.3	6.7
TWO ENGINES 7+ SEATS	ESTIMATE	220	516	4,295	4,043	2,789	79	23	71	927	8,806
	% STD. ERROR	49.9	27.5	6.8	8.1	9.3	48.4	123.0	53.5	17.2	0.0
	ROW %	2.5	5.9	48.8	45.9	31.7	0.9	0.3	0.8	10.5	0.0
	COLUMN %	1.9	6.2	4.8	5.6	14.6	3.5	3.0	4.8	0.8	3.4
PISTON OTHER	ESTIMATE	7	2	41	23	8	9	0	9	115	181
	% TD. ERROR	96.3	258.9	45.8	41.2	109.9	81.9	0.0	81.9	18.2	0.0
	ROW %	3.9	1.1	22.7	12.7	4.4	5.0	0.0	5.0	63.5	0.0
	COLUMN %	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.6	0.1	0.1
FIXED WING - TURBOPRO											
2 ENGINES 1-12 SEATS	ESTIMATE	0	97	321	2,589	3,988	100	31	60	169	4,543
	% STD. ERROR	0.0	54.2	24.4	6.5	2.6	46.9	58.3	50.3	34.5	0.0
	ROW %	0.0	2.1	7.1	57.0	87.8	2.2	0.7	1.3	3.7	0.0
	COLUMN %	0.0	1.2	0.4	3.6	20.9	4.4	4.0	4.0	0.1	1.8

8.7 1988 GENERAL AVIATION AIRCRAFT
BY AIRCRAFT TYPE AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL	
	1	2	3	4	5	6	7	8			
2 ENGINES 13+ SEATS	ESTIMATE	0	2	346	384	539	29	19	29	109	1,010
	% STD. ERROR	0.0	345.3	14.8	13.7	9.8	57.1	49.4	57.1	34.6	0.0
	ROW %	0.0	0.2	34.3	38.0	53.4	2.9	1.9	2.9	10.8	0.4
	COLUMN %	0.0	0.0	0.4	0.5	2.8	1.3	2.4	2.0	0.1	0.1
TURBOPROP OTHER	ESTIMATE	1	0	56	90	55	2	2	0	103	230
	% STD. ERROR	343.5	0.0	34.7	21.5	33.0	241.6	241.6	0.0	15.8	0.0
	ROW %	0.4	0.0	24.3	39.1	23.9	0.9	0.9	0.0	44.8	0.1
	COLUMN %	0.0	0.0	0.1	0.1	0.3	0.1	0.3	0.0	0.1	0.1
FIXED WING - TURBOJET											
2 ENGINES	ESTIMATE	2	229	296	3,120	3,400	218	143	166	278	4,061
	% STD. ERROR	124.0	31.5	21.7	3.9	3.1	28.6	34.4	30.3	30.1	0.0
	ROW %	0.0	5.6	7.3	76.8	83.7	5.4	3.5	4.1	6.8	1.6
	COLUMN %	0.0	2.8	0.3	4.3	17.8	9.6	18.4	11.2	0.2	0.2
TURBOJET OTHER	ESTIMATE	19	3	52	336	304	10	1	8	93	494
	% STD. ERROR	50.4	157.6	31.9	6.2	7.3	82.3	287.7	94.4	18.7	0.0
	ROW %	3.8	0.6	10.5	68.0	61.5	2.0	0.2	1.6	18.8	0.2
	COLUMN %	0.2	0.0	0.1	0.5	1.6	0.4	0.1	0.5	0.1	0.2
ROTORCRAFT											
PISTON	ESTIMATE	35	12	28	596	9	35	0	3	4,655	5,334
	% STD. ERROR	51.4	69.9	89.2	20.5	134.3	59.1	0.0	101.7	2.7	0.0
	ROW %	0.7	0.2	0.5	11.2	0.2	0.7	0.0	0.1	87.3	2.1
	COLUMN %	0.3	0.1	0.0	0.8	0.0	1.5	0.0	0.2	4.1	0.2
TURBINE	ESTIMATE	325	59	430	2,626	1,155	85	25	83	1,312	4,434
	% STD. ERROR	27.8	69.7	24.4	6.1	11.6	54.0	105.2	55.2	11.4	0.0
	ROW %	7.3	1.3	9.7	59.2	26.0	1.9	0.6	1.9	29.6	1.7
	COLUMN %	2.8	0.7	0.5	3.6	6.1	3.7	3.2	5.6	1.1	1.1

8.7 1988 GENERAL AVIATION AIRCRAFT
BY AIRCRAFT TYPE AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 3 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
	1	2	3	4	5	6	7	8		
OTHER AIRCRAFT	14	0	2	96	51	0	0	0	9,815	9,917
	35.4	0.0	89.6	56.0	104.8	0.0	0.0	0.0	0.5	0.0
	0.1	0.0	0.0	1.0	0.5	0.0	0.0	0.0	99.0	
	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.0	8.5	3.8
ALL AIRCRAFT	11,575	8,288	90,226	72,412	19,062	2,269	776	1,484	114,909	259,434
	6.0	7.3	1.4	1.9	3.2	13.1	21.7	16.2	1.1	
	4.5	3.2	34.8	27.9	7.3	0.9	0.3	0.6	44.3	

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.7

- 1 - LOCALIZER (LOC)
 - 2 - LOCALIZER, MARKER BEACON (MB)
 - 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
 - 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN , VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
 - 5 - RADAR ALTIMETER (RA)
 - 6 - MICROWAVE LANDING SYSTEM (MLS)
 - 7 - LOC, MB, GA, MLS
 - 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS

8.8 1988 GENERAL AVIATION AIRCRAFT
BY AGE OF AIRCRAFT AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

AGE OF AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS										
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL	
0 - 4 YEARS	ESTIMATE	905	606	6,472	9,261	4,507	454	195	307	12,366	26,701
	% STD. ERROR	22.1	25.2	8.2	6.0	6.6	25.3	40.8	27.2	5.1	3.4
	ROW % COLUMN %	3.4 7.8	2.3 7.3	24.2 7.2	34.7 12.8	16.9 23.6	1.7 20.0	0.7 25.1	1.1 20.7	46.3 10.8	10.3
5 - 9 YEARS	ESTIMATE	1,209	883	15,910	12,161	4,768	156	62	107	10,492	34,557
	% STD. ERROR	19.5	22.1	5.2	5.7	7.3	39.1	44.7	44.3	6.1	3.2
	ROW % COLUMN %	3.5 10.4	2.6 10.7	46.0 17.6	35.2 16.8	13.8 25.0	0.5 6.9	0.2 8.0	0.3 7.2	30.4 9.1	13.3
10 - 14 YEARS	ESTIMATE	3,061	1,432	24,019	16,435	4,928	597	143	388	17,279	53,291
	% STD. ERROR	12.3	18.8	4.0	5.0	8.3	26.8	54.5	33.8	4.7	2.5
	ROW % COLUMN %	5.7 26.4	2.7 17.3	45.1 26.6	30.8 22.7	9.2 25.9	1.1 26.3	0.3 18.4	0.7 26.1	32.4 15.0	20.5
15 - 19 YEARS	ESTIMATE	1,188	1,047	13,576	9,649	1,899	68	25	68	11,332	30,626
	% STD. ERROR	20.1	20.3	5.6	6.7	13.8	64.2	137.1	64.2	6.0	3.5
	ROW % COLUMN %	3.9 10.3	3.4 12.6	44.3 15.0	31.5 13.3	6.2 10.0	0.2 3.0	0.1 3.2	0.2 4.6	37.0 9.9	11.8
20 - 24 YEARS	ESTIMATE	1,364	1,999	15,826	12,231	1,830	430	157	344	15,827	39,861
	% STD. ERROR	18.3	15.5	5.0	5.9	13.3	34.9	57.0	39.2	5.0	3.0
	ROW % COLUMN %	3.4 11.8	5.0 24.1	39.7 17.5	30.7 16.9	4.6 9.6	1.1 19.0	0.4 20.2	0.9 23.2	39.7 13.8	15.4
25 - 29 YEARS	ESTIMATE	1,318	1,122	6,886	5,067	457	168	156	46	7,438	18,618
	% STD. ERROR	19.1	20.7	7.5	9.0	26.2	49.8	52.4	78.2	7.3	4.4
	ROW % COLUMN %	7.1 11.4	6.0 13.5	37.0 7.6	27.2 7.0	2.5 2.4	0.9 7.4	0.8 20.1	0.2 3.1	40.0 6.5	7.2
30 - 34 YEARS	ESTIMATE	960	635	5,175	3,692	479	285	2	205	7,323	15,908
	% STD. ERROR	21.7	27.3	8.8	10.9	31.0	43.3	131.0	50.8	7.2	4.6
	ROW % COLUMN %	6.0 8.3	4.0 7.7	32.5 5.7	23.2 5.1	3.0 2.5	1.8 12.6	0.0 0.3	1.3 13.8	46.0 6.4	6.1

8.8 1988 GENERAL AVIATION AIRCRAFT
BY AGE OF AIRCRAFT AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

AGE OF AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS								TOTAL
	1	2	3	4	5	6	7	8	NO GROUP
35+ YEARS	1,671	622	2,532	3,949	146	121	21	21	32,586
	13.9	22.3	10.4	8.3	34.9	41.6	52.2	52.5	1.9
	4.2	1.6	6.4	9.9	0.4	0.3	0.1	0.1	81.7
	14.4	7.5	2.8	5.5	0.8	5.3	2.7	1.4	28.4
TOTAL	11,575	8,288	90,226	72,412	19,062	2,269	776	1,484	114,909
	6.0	7.3	1.4	1.9	3.2	13.1	21.7	16.2	1.1
	4.5	3.2	34.8	27.9	7.3	0.9	0.3	0.6	44.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.8

- 1 - LOCALIZER (LOC)
- 2 - LOCALIZER, MARKER BEACON (MB)
- 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
- 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN, VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
- 5 - RADAR ALTIMETER (RA)
- 6 - MICROWAVE LANDING SYSTEM (MLS)
- 7 - LOC, MB, GA, MLS
- 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS

**8.9 1988 GENERAL AVIATION AIRCRAFT
BY TOTAL FLIGHT HOUR GROUPS AND NONHIERARCHICAL CAPABILITY GROUPS**

PAGE 1 OF 2

TOTAL FLIGHT HOUR GROUPS		NONHIERARCHICAL CAPABILITY GROUPS									
		1	2	3	4	5	6	7	8	NO GROUP	TOTAL
1 - 49 HOURS	ESTIMATE	2,322	2,371	13,906	10,076	1,117	112	34	99	30,829	54,303
	% STD. ERROR	13.6	14.3	5.5	6.4	17.3	55.0	93.4	59.7	3.3	2.5
	ROW %	4.3	4.4	25.6	18.6	2.1	0.2	0.1	0.2	56.8	
	COLUMN %	20.1	28.6	15.4	13.9	5.9	4.9	4.4	6.7	26.8	20.9
50 - 99 HOURS	ESTIMATE	2,908	2,243	22,955	18,195	2,047	464	119	337	18,414	53,365
	% STD. ERROR	12.2	14.1	4.2	4.8	14.0	33.1	65.3	39.5	4.6	2.6
	ROW %	5.4	4.2	43.0	34.1	3.8	0.9	0.2	0.6	34.5	
	COLUMN %	25.1	27.1	25.4	25.1	10.7	20.4	15.3	22.7	16.0	20.6
100 - 149 HOURS	ESTIMATE	1,404	1,370	18,374	13,652	2,771	213	154	128	8,284	34,566
	% STD. ERROR	17.4	18.5	4.8	5.6	11.6	43.2	53.5	53.9	7.1	3.4
	ROW %	4.1	4.0	53.2	39.5	8.0	0.6	0.4	0.4	24.0	
	COLUMN %	12.1	16.5	20.4	18.9	14.5	9.4	19.8	8.6	7.2	13.3
150 - 199 HOURS	ESTIMATE	909	174	9,135	6,931	1,840	162	70	107	3,951	17,046
	% STD. ERROR	22.4	51.1	7.0	7.9	14.3	50.4	79.0	57.1	10.4	5.0
	ROW %	5.3	1.0	53.6	40.7	10.8	1.0	0.4	0.6	23.2	
	COLUMN %	7.9	2.1	10.1	9.6	9.7	7.1	9.0	7.2	3.4	6.6
200 - 249 HOURS	ESTIMATE	602	430	6,692	5,083	2,021	57	48	11	2,924	13,042
	% STD. ERROR	28.2	33.4	8.4	9.1	12.8	83.3	97.2	85.3	12.0	5.7
	ROW %	4.6	3.3	51.3	39.0	15.5	0.4	0.4	0.1	22.4	
	COLUMN %	5.2	5.2	7.4	7.0	10.6	2.5	6.2	0.7	2.5	5.0
250 - 299 HOURS	ESTIMATE	332	173	3,588	2,964	1,220	136	50	101	1,228	6,717
	% STD. ERROR	39.6	47.3	11.5	11.8	16.1	51.6	83.9	66.1	18.3	8.0
	ROW %	4.9	2.6	53.4	44.1	18.2	2.0	0.7	1.5	18.3	
	COLUMN %	2.9	2.1	4.0	4.1	6.4	6.0	6.4	6.8	1.1	2.6

8.9 1988 GENERAL AVIATION AIRCRAFT
BY TOTAL FLIGHT HOUR GROUPS AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

TOTAL FLIGHT HOUR GROUPS	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
300 - 349 HOURS	267 ESTIMATE 41.8 ROW % 4.4 COLUMN % 2.3	155 49.9 2.5 1.9	2,270 14.6 37.1 2.5	2,241 13.1 36.7 3.1	1,132 14.0 18.5 5.9	117 59.6 1.9 5.2	14 91.6 0.2 1.8	51 100.6 0.8 3.4	2,037 15.0 33.3 1.8	6,112 8.3 2.4
350 - 399 HOURS	140 ESTIMATE 51.5 ROW % 3.0 COLUMN % 1.2	350 38.6 7.6 4.2	1,967 15.5 42.7 2.2	1,515 14.8 32.9 2.1	1,029 15.2 22.3 5.4	18 81.6 0.4 0.8	10 87.8 0.2 1.3	15 95.2 0.3 1.0	1,123 19.4 24.4 1.0	4,610 9.3 1.8
400 - 449 HOURS	486 ESTIMATE 33.1 ROW % 10.2 COLUMN % 4.2	89 65.1 1.9 1.1	1,606 18.4 33.5 1.8	2,225 14.4 46.5 3.1	1,232 16.2 25.7 6.5	89 71.9 1.9 3.9	5 256.0 0.1 0.6	89 71.9 1.9 6.0	1,227 19.1 25.6 1.1	4,788 9.7 1.8
450+ HOURS	830 ESTIMATE 24.2 ROW % 5.6 COLUMN % 7.2	445 32.0 3.0 5.4	4,960 9.5 33.4 5.5	5,724 7.1 38.6 7.9	3,283 7.4 22.1 17.2	335 31.2 2.3 14.8	216 40.4 1.5 27.8	149 32.1 1.0 10.0	4,352 9.4 29.3 3.8	14,846 4.7 5.7
INACTIVE	1,473 ESTIMATE 17.8 ROW % 2.9 COLUMN % 12.7	425 30.9 0.8 5.1	4,864 9.3 9.7 5.4	3,837 10.3 7.7 5.3	1,218 15.8 2.4 6.4	517 28.2 1.0 22.8	16 60.7 0.0 2.1	335 35.5 0.7 22.6	40,385 2.6 80.7 35.1	50,016 2.3 19.3
TOTAL	11,575 ESTIMATE 6.0 ROW % 4.5	8,288 7.3 3.2	90,226 1.4 34.8	72,412 1.9 27.9	19,062 3.2 7.3	2,269 13.1 0.9	776 21.7 0.3	1,484 16.2 0.6	114,909 1.1 44.3	259,434

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.9

- 1 - LOCALIZER (LOC)
- 2 - LOCALIZER, MARKER BEACON (MB)
- 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
- 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN , VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
- 5 - RADAR ALTIMETER (RA)
- 6 - MICROWAVE LANDING SYSTEM (MLS)
- 7 - LOC, MB, GA, MLS
- 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS

8.10 1988 GENERAL AVIATION AIRCRAFT
BY PRIMARY USE AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

PRIMARY USE	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
EXECUTIVE	ESTIMATE	156	301	2,387	7,298	7,412	431	288	183	10,882
	% STD. ERROR	48.8	28.6	13.0	4.9	3.8	26.0	33.7	32.4	25.5
	ROW %	1.4	2.8	21.9	67.1	68.1	4.0	2.6	1.7	3.7
BUSINESS	COLUMN %	1.3	3.6	2.6	10.1	38.9	19.0	37.1	12.3	0.3
	ESTIMATE	1,297	1,077	22,379	15,515	4,731	36	142	310	4,529
	% STD. ERROR	18.0	20.7	4.1	5.1	8.6	35	56.2	39.2	9.8
PERSONAL	ROW %	3.7	3.1	64.1	44.4	13.5	1.0	0.4	0.9	13.0
	COLUMN %	11.2	13.0	24.8	21.4	24.8	16.1	18.3	20.9	3.9
	ESTIMATE	5,994	4,896	47,911	36,942	2,570	402	75	351	50,425
INSTRUCTIONAL	% STD. ERROR	8.4	9.8	2.5	3.2	12.7	33.8	72.4	36.5	2.1
	ROW %	4.9	4.0	39.1	30.1	2.1	0.3	0.1	0.3	41.1
	COLUMN %	51.8	59.1	53.1	51.0	13.5	17.7	9.7	23.7	43.9
AERIAL APPLICATION	ESTIMATE	1,841	563	5,763	1,919	290	140	0	105	7,702
	% STD. ERROR	16.5	30.0	8.9	15.4	45.0	61.5	0.0	69.9	7.3
	ROW %	11.0	3.4	34.6	11.5	1.7	0.8	0.0	0.6	46.2
AERIAL OBSERVATION	COLUMN %	15.9	6.8	6.4	2.7	1.5	6.2	0.0	7.1	6.7
	ESTIMATE	121	1	373	748	95	34	0	0	6,242
	% STD. ERROR	41.3	231.8	35.9	21.3	45.5	60.4	0.0	0.0	3.7
	ROW %	1.7	0.0	5.3	10.6	1.3	0.5	0.0	0.0	88.6
	COLUMN %	1.0	0.0	0.4	1.0	0.5	1.5	0.0	0.0	5.4
	ESTIMATE	346	154	1,563	1,706	133	77	77	0	2,131
	% STD. ERROR	34.2	56.1	17.1	15.6	39.3	77.7	77.7	0.0	14.0
	ROW %	7.3	3.2	32.8	35.8	2.8	1.6	1.6	0.0	44.8
	COLUMN %	3.0	1.9	1.7	2.4	0.7	3.4	9.9	0.0	1.9

**8.10 1988 GENERAL AVIATION AIRCRAFT
BY PRIMARY USE AND NONHIERARCHICAL CAPABILITY GROUPS**

PAGE 2 OF 2

PRIMARY USE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL	
	1	2	3	4	5	6	7	8			
OTHER WORK	ESTIMATE	160	19	393	392	156	2	0	2	988	1,841
	% STD. ERROR	56.7	120.0	34.0	30.7	46.2	303.4	0.0	303.4	19.9	14.8
	ROW %	8.7	1.0	21.3	21.3	0.5	0.1	0.0	0.1	53.7	0.7
	COLUMN %	1.4	0.2	0.4	0.5	0.8	0.1	0.0	0.1	0.9	0.7
COMPUTER AIR CARRIER	ESTIMATE	0	2	412	255	369	19	0	19	166	973
	% STD. ERROR	0.0	303.4	26.0	34.3	23.2	70.6	0.0	70.6	44.4	15.5
	ROW %	0.0	0.2	42.3	26.2	37.9	2.0	0.0	2.0	17.1	0.4
	COLUMN %	0.0	0.0	0.5	0.4	1.9	0.8	0.0	1.3	0.1	0.4
AIR TAXI	ESTIMATE	227	597	3,090	2,699	1,585	183	94	71	484	6,518
	% STD. ERROR	40.4	27.2	11.3	10.7	14.2	48.4	73.8	62.8	26.6	6.9
	ROW %	3.5	9.2	47.4	41.4	24.3	2.8	1.4	1.1	7.4	2.5
	COLUMN %	2.0	7.2	3.4	3.7	8.3	8.1	12.1	4.8	0.4	2.5
OTHER USE	ESTIMATE	102	210	1,319	1,313	384	54	43	48	1,835	4,081
	% STD. ERROR	57.8	40.1	16.6	15.4	21.1	58.5	71.4	61.9	13.4	8.8
	ROW %	2.5	5.1	32.3	32.2	9.4	1.3	1.1	1.2	45.0	1.6
	COLUMN %	0.9	2.5	1.5	1.8	2.0	2.4	5.5	3.2	1.6	1.6
INACTIVE	ESTIMATE	1,473	425	4,864	3,837	1,218	517	16	335	40,385	50,016
	% STD. ERROR	17.8	30.9	9.3	10.3	15.8	28.2	60.7	35.5	2.6	2.3
	ROW %	2.9	0.8	9.7	7.7	2.4	1.0	0.0	0.7	80.7	19.3
	COLUMN %	12.7	5.1	5.4	5.3	6.4	22.8	2.1	22.6	35.1	19.3
TOTAL	ESTIMATE	11,575	8,288	90,226	72,412	19,062	2,269	776	1,484	114,909	259,434
	% STD. ERROR	6.0	7.3	1.4	1.9	3.2	13.1	21.7	16.2	1.1	1.1
	ROW %	4.5	3.2	34.8	27.9	7.3	0.9	0.3	0.6	44.3	4.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.10

- 1 - LOCALIZER (LOC)
 - 2 - LOCALIZER, MARKER BEACON (MB)
 - 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
 - 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN , VER ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
 - 5 - RADAR ALTIMETER (RA)
 - 6 - MICROWAVE LANDING SYSTEM (MLS)
 - 7 - LOC, MB, GA, MLS
 - 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS

8-39

8.11 1988 GENERAL AVIATION AIRCRAFT
BY REGION OF BASED AIRCRAFT AND NONHIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

REGION OF BASED AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL	
	1	2	3	4	5	6	7	8			
NORTHWEST MOUNTAIN	ESTIMATE	1,484	676	8,081	6,647	1,179	63	20	58	11,332	24,307
	% STD. ERROR	17.8	26.5	7.6	8.2	16.6	68.5	53.3	73.8	6.1	4.1
	ROW %	6.1	2.8	33.2	27.3	4.9	0.3	0.1	0.2	46.6	
	COLUMN %	12.8	8.2	9.0	9.2	6.2	2.8	2.6	3.9	9.9	9.4
SOUTHERN	ESTIMATE	2,265	1,652	15,767	15,950	4,406	529	175	357	14,371	41,667
	% STD. ERROR	14.9	17.2	5.2	5.2	8.5	28.5	51.6	34.6	5.4	3.0
	ROW %	5.4	4.0	37.8	38.3	10.6	1.3	0.4	0.9	34.5	
	COLUMN %	19.6	19.9	17.5	22.0	23.1	23.3	22.6	24.1	12.5	16.1
SOUTHWESTERN	ESTIMATE	1,592	830	12,541	9,332	3,380	569	214	373	14,983	35,468
	% STD. ERROR	17.5	23.0	6.0	6.8	9.9	28.9	45.6	35.1	5.1	3.3
	ROW %	4.5	2.3	35.4	26.3	9.5	1.6	0.6	1.1	42.2	
	COLUMN %	13.8	10.0	13.9	12.9	17.7	25.1	27.6	25.1	13.0	13.7
WESTERN-PACIFIC	ESTIMATE	1,496	1,425	18,720	11,403	2,877	308	41	190	20,087	46,956
	% STD. ERROR	16.1	17.5	4.8	6.1	10.7	33.4	79.6	44.7	4.4	2.8
	ROW %	3.2	3.0	39.9	24.3	6.1	0.7	0.1	0.4	42.8	
	COLUMN %	12.9	17.2	20.7	15.7	15.1	13.6	5.3	12.8	17.5	18.1
TOTAL	ESTIMATE	11,575	8,288	90,226	72,412	19,062	2,269	776	1,484	114,909	259,434
	% STD. ERROR	6.0	7.3	1.4	1.9	3.2	13.1	21.7	16.2	1.1	
	ROW %	4.5	3.2	34.8	27.9	7.3	0.9	0.3	0.6	44.3	
	COLUMN %										

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

COLUMN DEFINITIONS FOR TABLE 8.11

- 1 - LOCALIZER (LOC)
 - 2 - LOCALIZER, MARKER BEACON (MB)
 - 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
 - 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN , VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
 - 5 - RADAR ALTIMETER (RA)
 - 6 - MICROWAVE LANDING SYSTEM (MLS)
 - 7 - LOC, MB, GA, MLS
 - 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS

APPENDICES

APPENDIX A

CONVERSION TABLE FOR TABLES

1987 TABLE	1988 TABLE
1-1 Summary of Response Information by Survey Phase	B.1 Summary of Response Information
1-2 Growth of General Aviation Total Hours Flown by Aircraft Type 1982-1987	See Figure 3.2.
1-3 Growth of Active General Aviation Fleet by Aircraft Type 198 1987	See Figure 3.3.
1-4 Hierarchical Capability Groups	See Figure 8.1.
1-5 Non-Hierarchical Capability Groups	See Figure 8.2.
1-6 Computed Aircraft Type	Deleted. See Chapter 2, Common General Aviation Activity Measures.
2-1 General Aviation Total Hours Flown by Type of Aircraft - CY 1987	2.1 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by Aircraft Type
2-2 General Aviation Total Hours Flown by State of Based Aircraft - CY 1987	2.4 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by State of Based Aircraft
2-3 General Aviation Total Hours Flown by Region of Based Aircraft - CY 1987	2.3 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by Region of Based Aircraft
2-4 General Aviation Total Hours Flown by Aircraft Type and Primary Use - CY 1987	3.2 1988 General Aviation Total Hours Flown by Primary Use by Aircraft Type
2-5 General Aviation Annual Hours by SDR Aircraft Manufacturer/Model Group - CY 1987	2.2 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by SDR Aircraft Manufacturer/Model Group
2-6 General Aviation Active Aircraft by Type of Aircraft - CY 1987	2.1 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by Aircraft Type

1987 TABLE

- 2-7 General Aviation Active Aircraft by State of Based Aircraft - CY 1987
- 2-8 General Aviation Active Aircraft by Region of Based Aircraft - CY 1987
- 2-9 General Aviation Aircraft in All Regions by Aircraft Type and Primary Use - CY 1987
- 2-10 General Aviation Active Aircraft IFR Flown and Transponder Equipped - CY 1987
- 2-11 General Aviation Active Aircraft by SDR Aircraft Manufacturer/Model Group - CY 1987
- 2-12 General Aviation Annual Hours Flown by Weather and Light Conditions by Aircraft Type - CY 1987
- 2-13 General Aviation Annual Hours Flown by Weather and Light Conditions by Base Region of Aircraft - CY 1987

1988 TABLE

- 2.4 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by State of Based Aircraft
- 2.3 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by Region of Based Aircraft
- 3.1 1988 General Aviation Number of Aircraft by Primary Use by Aircraft Type
- 7.17 1988 General Aviation Active Aircraft and Total Hours Flown by Aircraft Type Under IFR and Active Aircraft Flown Under IFR with Mode S
- 2.2 1988 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by SDR Aircraft Manufacturer/Model Group
- 4.1 1988 General Aviation Active Aircraft and Total Hours Flown by Day/Night by Aircraft Type
- 4.2 1988 General Aviation Active Aircraft and Total Hours Flown Under VMC Conditions by Day/Night by Aircraft Type
- 4.3 1988 General Aviation Active Aircraft and Total Hours Flown Under IMC Conditions by Day/Night by Aircraft Type
- 4.4 1988 General Aviation Active Aircraft and Total Hours Flown by Day/Night by Region of Based Aircraft
- 4.5 1988 General Aviation Active Aircraft and Total Hours Flown Under VMC Conditions by Day/Night by Region of Based Aircraft

1987 TABLE

2-13, Continued.

2-14 General Aviation Annual Hours Flown by Weather and Light Conditions by SDR Manufacturer/Model Group - CY 1987

2-15 General Aviation Avionics Equipment by Aircraft Type - CY 1987

2-16 General Aviation Avionics Equipment by Base State of Aircraft - CY 1987

2-17 General Aviation Avionics Equipment by Base Region of Aircraft - CY 1987

1988 TABLE

4.6 1988 General Aviation Active Aircraft and Total Hours Flown Under IMC Conditions by Day/Night by Region of Based Aircraft

4.7 1988 General Aviation Active Aircraft and Total Hours Flown by Day/Night by SDR Manufacturer/Model Group

4.8 1988 General Aviation Active Aircraft and Total Hours Flown Under VMC and IMC Conditions by SDR Manufacturer/Model Group

7.1 1988 General Aviation Aircraft with VHF Communications and Transponder Equipment by Aircraft Type

7.5 1988 General Aviation Aircraft with Precision Approach Equipment by Aircraft Type

7.9 1988 General Aviation Aircraft with Navigation Equipment by Aircraft Type

7.13 1988 General Aviation Aircraft with Guidance and Control Equipment by Aircraft Type

7.4 1988 General Aviation Aircraft with VHF Communications and Transponder Equipment by State of Based Aircraft

7.8 1988 General Aviation Aircraft with Precision Approach Equipment by State of Based Aircraft

7.12 1988 General Aviation Aircraft with Navigation Equipment by State of Based Aircraft

7.16 1988 General Aviation Aircraft with Guidance and Control Equipment by State of Based Aircraft

7.3 1988 General Aviation Aircraft with VHF Communications and Transponder Equipment by Region of Based Aircraft

1987 TABLE

2-17, Continued.

2-18 General Aviation Avionics Equipment by Primary Use - CY 1987

2-19 General Aviation Lifetime Airframe Hours by Aircraft Manufacturer/Model Group - CY 1987

2-20 General Aviation Mean Hours and Active Engines by Engine Manufacturer/Model Group - CY 1987

2-21 General Aviation Fuel Consumption by Aircraft Type - CY 1987

2-22 General Aviation Fuel Consumption by Aircraft Manufacturer/Model Group - CY 1987

2-23 General Aviation Fuel Consumption by Aircraft Type and Fuel Grade - CY 1987

1988 TABLE

7.7 1988 General Aviation Aircraft with Precision Approach Equipment by Region of Based Aircraft

7.11 1988 General Aviation Aircraft with Navigation Equipment by Region of Based Aircraft

7.15 1988 General Aviation Aircraft with Guidance and Control Equipment by Region of Based Aircraft

7.2 1988 General Aviation Aircraft with VHF Communications and Transponder Equipment by Primary Use

7.6 1988 General Aviation Aircraft with Precision Approach Equipment by Primary Use

7.10 1988 General Aviation Aircraft with Navigation Equipment by Primary Use

7.14 1988 General Aviation Aircraft with Guidance and Control Equipment by Primary Use

6.2 1988 General Aviation Average Airframe Hours Per Active Aircraft by SDR Aircraft Manufacturer/Model Group

6.3 1988 Number of Engines on Active General Aviation Aircraft and Average Hours per Engine by Engine SDR Manufacturer/Model Group

5.1 1988 General Aviation Total Fuel Consumed and Average Fuel Consumption Rate by Aircraft Type

5.3 1988 General Aviation Total Fuel Consumed and Average Fuel Consumption Rate by Fuel Grade by SDR Aircraft Manufacturer/Model Group

5.2 1988 General Aviation Total Fuel Consumed and Average Fuel Consumption Rate by Fuel Grade by Aircraft Type

1987 TABLE

- 2-24 General Aviation Miles Flown by Aircraft Type - CY 1987
- 2-25 Non-Hierarchical vs. Hierarchical Capability Groups - CY 1987
- 2-26 Primary Use vs. Hierarchical Capability Groups - CY 1987
- 2-27 Hours Flown vs. Hierarchical Capability Groups - CY 1987
- 2-28 Age of Aircraft vs. Hierarchical Capability Groups - CY 1987
- 2-29 Computed Aircraft Type vs. Hierarchical Capability Groups - CY 1987
- 2-30 Base Airport Region vs. Hierarchical Capability Groups - CY 1987
- 2-31 Primary Use vs. Non-Hierarchical Capability Groups - CY 1987
- 2-32 Hours Flown vs. Non-Hierarchical Capability Groups - CY 1987
- 2-33 Age of Aircraft vs. Non-Hierarchical Capability Groups - CY 1987
- 2-34 Computed Aircraft Type vs. Non-Hierarchical Capability Groups - CY 1987
- 2-35 Base Airport Region vs. Non-Hierarchical Capability Groups - CY 1987

1988 TABLE

- 3.3 1988 General Aviation Nautical Miles Flown by Primary Use by Aircraft Type
- 8.6 1988 General Aviation Aircraft by Nonhierarchical and Hierarchical Capability Groups
- 8.4 1988 General Aviation Aircraft by Primary Use and Hierarchical Capability Groups
- 8.3 1988 General Aviation Aircraft by Total Flight Hours Groups and Hierarchical Capability Groups
- 8.2 1988 General Aviation Aircraft by Age of Aircraft and Hierarchical Capability Groups
- 8.1 1988 General Aviation Aircraft by Aircraft Type and Hierarchical Capability Groups
- 8.5 1988 General Aviation Aircraft by Region of Based Aircraft and Hierarchical Capability Groups
- 8.10 1988 General Aviation Aircraft by Primary Use and Nonhierarchical Capability Groups
- 8.9 1988 General Aviation Aircraft by Total Flight Hour Groups and Nonhierarchical Capability Groups
- 8.8 1988 General Aviation Aircraft by Age of Aircraft and Nonhierarchical Capability Groups
- 8.7 1988 General Aviation Aircraft by Aircraft Type and Nonhierarchical Capability Groups
- 8.11 1988 General Aviation Aircraft by Region of Based Aircraft and Nonhierarchical Capability Groups

1987 TABLE

2-36 General Aviation Number of Landings in Local Flight by Aircraft Type and Region - CY 1987

2-37 General Aviation Number of Landings in Cross Country Flight by Aircraft Type and Region - CY 1987

2-38 General Aviation Total Number of Landings by Aircraft Type and Region - CY 1987

B-1 Sample and Population Distributions by Aircraft Type

B-2 Sample and Population Distributions by Region of Registered Aircraft

B-3 Confidence of Interval Estimates

B-4 Response Rates by Region

B-5 Response Rates by Aircraft Type

D-1 SDR Aircraft Group Name - FAA Manufacturer/Model Codes

E-1 SDR Engine Group Name - FAA Manufacturer/Model Codes

New

New

New

1988 TABLE

2.6 1988 General Aviation Number of Landings in Local Flight by Aircraft Type by Region of Based Aircraft

2.7 1988 General Aviation Number of Landings in Cross Country Flight by Aircraft Type by Region of Based Aircraft

2.5 1988 General Aviation Total Number of Landings by Aircraft Type by Region of Based Aircraft

B.2 Sample and Population Distribution by Aircraft Type

B.3 Sample and Population Distribution by Region of Registered Aircraft

B.4 Confidence of Interval Estimates

B.5 Response Rate by Region

B.6 Response Rate by Aircraft Type

See Appendix C

See Appendix D

6.1 1988 General Aviation Average Airframe Hours Per Active Aircraft by Aircraft Type

APPENDIX A - Conversion Table

APPENDIX E - Common Acronyms and Glossary

APPENDIX A

CONVERSION TABLE FOR FIGURES

1987 FIGURE	1988 FIGURE
1.1 A Comparison of General Aviation and Air Carrier Activity in 1987	Deleted.
1.2 General Aviation Active Fleet Size, 1983-1987	B.5 General Aviation Active Fleet Size, 1984-1988
1.3 General Aviation Total Flying Time, 1983-1987	B.6 General Aviation Total Flying Time, 1984-1988
1.4 General Aviation Mean Annual Flying Time for Active Aircraft, 1983-1987	B.7 General Aviation Average Flying Time for Active Aircraft, 1984-1988
1.5 1987 General Aviation Activity by Aircraft Type	Deleted.
1.6 1987 General Aviation Number of Landings by Aircraft Type	2.3 1988 General Aviation Landings by Aircraft Type
1.7 1987 General Aviation Activity by Primary Use	3.1 1988 General Aviation Total Hours by Primary Use
1.8 1987 General Aviation Annual Hours Flown by Weather and Light Conditions	4.1 1988 General Aviation Total Hours Flown by Weather and Light Conditions
1.9 1987 General Aviation Activity by FAA Region	Deleted.
1.10 Avionics Equipment in the 1987 General Aviation Aircraft Fleet	7.1 Avionics Equipment in the 1988 General Aviation Aircraft Fleet
1.11 1987 General Aviation Active Aircraft Flown IFR and Transponder Equipped	Deleted.
1.12 1987 Mean Fuel Consumption Rates by Aircraft Type	5.1 1988 Average Fuel Consumption Rates by Aircraft Type
1.13 1987 Estimated Fuel Consumption by Aircraft Type	5.2 1988 Estimated Fuel Consumption by Aircraft Type
1.14 1987 General Aviation Fuel Consumption by Fuel Grade	5.3 1988 General Aviation Fuel Consumption by Fuel Grade

1987 FIGURE

- A.1 First Mailing Cover Letter
- A.2 Second Mailing Cover Letter
- A.3 Third Mailing Cover Letter
- A.4 Survey Questionnaire
- B.1 Comparison of Population and Sample Distributions by Aircraft Type
- B.2 Comparison of Population and Sample Distributions by Region of Registered Aircraft

New

New

New

1988 FIGURE

- B.2 First Cover Letter
- B.3 Second Cover Letter
- B.4 Prompting Letter
- B.1 Survey Questionnaire
- Deleted.

Deleted.

2.1 1988 General Aviation Active Aircraft by Aircraft Type

2.2 1988 General Aviation Total Flight Hours by Aircraft Type

6.1 1988 General Aviation Average Airframe Hours Per Active Aircraft by Aircraft Type

APPENDIX B

METHODOLOGY

1. OVERVIEW

1.1 Purpose of Survey

The purpose of the General Aviation Activity and Avionics (GAAA) Survey is to provide the Federal Aviation Administration (FAA) with information on the activity and avionics of the general aviation fleet. The information obtained from the survey enables the FAA to monitor the general aviation fleet so that it can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to assure the safe operation in the airspace of all aircraft.

1.2 Background

Prior to the current survey method, the FAA used the Aircraft Registration Eligibility, Identification, and Activity Report, AC Form 8050-73, in its data collection program on general aviation activity and avionics. The form was sent annually to all owners of civil aircraft in the U.S., and served two purposes: (1) Part 1 was the mandatory aircraft registration revalidation form, and (2) Part 2 was voluntary and applied to general aviation aircraft only, asking questions on the owner-discretionary characteristics of the aircraft such as flight hours, avionics equipment, base location, and use. This information was used by FAA to estimate aircraft activity.

In 1978, the FAA replaced AC Form 8050-73 with a new system: Part 1 was replaced by a triennial registration program; and Part 2 was replaced by the General Aviation Activity and Avionics Survey, FAA Form 1800-54, shown in Figure B.1. The GAAA Survey was to be conducted annually, based on a statistically selected sample of general aviation aircraft, requesting the same type of information as Part 2 of AC Form 8050-73. The first survey took place in 1978, collecting data on the 1977 general aviation fleet. The 1988 statistics in this report were derived from the twelfth survey, which took place in 1989. Benefits resulting from the new system of data collection include quicker processing of the results, improved data quality, and a considerable savings in time and money to both the public and the Federal Government.

Figure B.1 SURVEY QUESTIONNAIRE

Form Approved OMB NO 2120-0060

GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY (As of December 31, 1988)																																																																																																																																																			
<p>This report is authorized by Section 311 of Federal Aviation Act of 1959. This information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you provide will be used only for statistical purposes and will not be published or released in any form that would reveal specific information reported by an individually identifiable respondent. The FAA has determined that the information you provide in this survey is exempt from public disclosure under the Freedom of Information Act.</p>																																																																																																																																																			
<p>INSTRUCTIONS: Please answer questions for the aircraft at right. Mail the completed questionnaire in the enclosed postage paid envelope to:</p>		<p>Federal Aviation Administration Attention: ERA Caller No. 91013 Arlington, Virginia 22202</p>																																																																																																																																																	
<p>1 AIRCRAFT CHARACTERISTICS</p>																																																																																																																																																			
<p>2 In 1988, did you operate this aircraft primarily as an air carrier under FAR parts 121 or 127 or lease this aircraft to such an air carrier? <input type="checkbox"/> NO (Please answer remaining questions. This form should be completed for all general aviation aircraft and aircraft operated under Part 135, commuter and air taxi.) <input type="checkbox"/> YES (Do not complete the rest of this form, but return to address shown above with enclosed post-paid envelope.)</p>																																																																																																																																																			
<p>3 What were the total lifetime airframe hours as of December 31, 1988?</p> <p>4 In what State (abbreviation) was this aircraft based as of December 1988?</p> <p>5 Was the aircraft flown in Calendar Year 1988? <input type="checkbox"/> Yes <input type="checkbox"/> No (Skip to question 14)</p> <p>6 How many hours did this aircraft fly in each of the categories below during the Calendar Year 1988? Please estimate use for rental & leased hours.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">EXECUTIVE/CORPORATE TRANSPORTATION-Company flying with a professional crew</td> <td style="width: 20%; text-align: center;">a</td> </tr> <tr> <td>BUSINESS TRANSPORTATION-Individual use of an aircraft for business transportation</td> <td style="text-align: center;">b</td> </tr> <tr> <td>PERSONAL-Flying for personal reasons (excludes business transportation)</td> <td style="text-align: center;">c</td> </tr> <tr> <td>INSTRUCTIONAL-Flying under the supervision of a flight instructor (excludes proficiency flying)</td> <td style="text-align: center;">d</td> </tr> <tr> <td>AERIAL APPLICATION-Agriculture, health, forestry, cloud seeding, firefighting, insect control, etc.</td> <td style="text-align: center;">e</td> </tr> <tr> <td>AERIAL OBSERVATION-Aerial mapping, photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135), etc.</td> <td style="text-align: center;">f</td> </tr> <tr> <td>OTHER WORK USE-Construction work (not FAR part 135), helicopter hoist, parachuting, aerial advertising, towing gliders, etc.</td> <td style="text-align: center;">g</td> </tr> <tr> <td>COMMUTER AIR CARRIER-Performs, under FAR part 135, at least five scheduled round trips per week or carries mail</td> <td style="text-align: center;">h</td> </tr> <tr> <td>AIR TAXI-FAR part 135 passenger and cargo operations excluding commuter air carrier</td> <td style="text-align: center;">i</td> </tr> <tr> <td>What was the average revenue (dollars) per hour for this aircraft in air taxi operation?</td> <td style="text-align: center;">j</td> </tr> <tr> <td>OTHER-Experimentation, R&D, testing, demonstrations, government, air shows, air racing, etc.</td> <td style="text-align: center;">k</td> </tr> </table> <p>7 Was the aircraft rented or leased to others in 1988? <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes," how many rental or leased hours?</p> <p>8 What was this aircraft's average rate of fuel consumption (gals./hr.)?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Estimate the percent of each fuel and grade used</td> <td style="width: 20%; text-align: center;">%</td> </tr> <tr> <td>Jet fuel</td> <td style="text-align: center;">b</td> </tr> <tr> <td>Aviation fuel</td> <td style="text-align: center;">c</td> </tr> <tr> <td>80 Octane</td> <td style="text-align: center;">d</td> </tr> <tr> <td>100 Octane</td> <td style="text-align: center;">e</td> </tr> <tr> <td>100 Octane-Low Lead</td> <td style="text-align: center;">f</td> </tr> <tr> <td>Automotive Gasoline</td> <td style="text-align: center;">g</td> </tr> <tr> <td>Total (b-f should add to 100%)</td> <td style="text-align: center;">100%</td> </tr> <tr> <td>What was the average cost per gal?</td> <td style="text-align: center;">\$ c</td> </tr> </table> <p>9 How many landings, including touch and go landings, did this aircraft perform in each of the following categories during Calendar Year 1988?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Number of landings in local flight</td> <td style="width: 20%; text-align: center;">a</td> </tr> <tr> <td>Number of landings in cross-country flight</td> <td style="text-align: center;">b</td> </tr> </table>	EXECUTIVE/CORPORATE TRANSPORTATION -Company flying with a professional crew	a	BUSINESS TRANSPORTATION -Individual use of an aircraft for business transportation	b	PERSONAL -Flying for personal reasons (excludes business transportation)	c	INSTRUCTIONAL -Flying under the supervision of a flight instructor (excludes proficiency flying)	d	AERIAL APPLICATION -Agriculture, health, forestry, cloud seeding, firefighting, insect control, etc.	e	AERIAL OBSERVATION -Aerial mapping, photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135), etc.	f	OTHER WORK USE -Construction work (not FAR part 135), helicopter hoist, parachuting, aerial advertising, towing gliders, etc.	g	COMMUTER AIR CARRIER -Performs, under FAR part 135, at least five scheduled round trips per week or carries mail	h	AIR TAXI -FAR part 135 passenger and cargo operations excluding commuter air carrier	i	What was the average revenue (dollars) per hour for this aircraft in air taxi operation?	j	OTHER -Experimentation, R&D, testing, demonstrations, government, air shows, air racing, etc.	k	Estimate the percent of each fuel and grade used	%	Jet fuel	b	Aviation fuel	c	80 Octane	d	100 Octane	e	100 Octane-Low Lead	f	Automotive Gasoline	g	Total (b-f should add to 100%)	100%	What was the average cost per gal?	\$ c	Number of landings in local flight	a	Number of landings in cross-country flight	b	<p>10 In 1988, what percent of the hours did this aircraft fly under the following condition?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">DAY FLYING</td> <td style="width: 20%; text-align: center;">%</td> </tr> <tr> <td>a Visual Meteorological Condition (VMC)</td> <td style="text-align: center;">a</td> </tr> <tr> <td>b Instrument Meteorological Condition (IMC)</td> <td style="text-align: center;">b</td> </tr> <tr> <td>NIGHT FLYING</td> <td style="text-align: center;">%</td> </tr> <tr> <td>c Visual Meteorological Condition (VMC)</td> <td style="text-align: center;">c</td> </tr> <tr> <td>d Instrument Meteorological Condition (IMC)</td> <td style="text-align: center;">d</td> </tr> <tr> <td>Total (a + b + c + d)</td> <td style="text-align: center;">100%</td> </tr> </table> <p>11 Was this aircraft flown on an Instrument Flight Plan in 1988? <input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes" how many hours were flown?</p> <p>12 What were the maintenance expenses for this aircraft in 1988?</p> <p>13 What was the cost to insure this aircraft in 1988? (include liability, medical and hull)</p> <p>14 AVIONICS EQUIPMENT CAPABILITY ("X" All boxes that reflect this aircraft's current capability.)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">VHF COMMUNICATIONS EQUIPMENT</td> <td style="width: 20%; text-align: center;">a <input type="checkbox"/> Yes</td> </tr> <tr> <td>360 Channels or less</td> <td style="text-align: center;">c</td> </tr> <tr> <td>720 Channels or more</td> <td style="text-align: center;">d</td> </tr> <tr> <td>More than One Communications System</td> <td style="text-align: center;">e</td> </tr> <tr> <td>Cockpit Voice Recorder</td> <td style="text-align: center;">f</td> </tr> <tr> <td>TRANSPONDER EQUIPMENT</td> <td style="text-align: center;">g <input type="checkbox"/> Yes</td> </tr> <tr> <td>Mode S Capability</td> <td style="text-align: center;">i</td> </tr> <tr> <td>Altitude Encoding Equipment</td> <td style="text-align: center;">j</td> </tr> <tr> <td>Collision Avoidance Equipment</td> <td style="text-align: center;">k</td> </tr> <tr> <td>NAVIGATION EQUIPMENT</td> <td style="text-align: center;">l <input type="checkbox"/> Yes</td> </tr> <tr> <td>VOR Receiver</td> <td style="text-align: center;">n</td> </tr> <tr> <td>100 Channels</td> <td style="text-align: center;">o</td> </tr> <tr> <td>200 Channels</td> <td style="text-align: center;">p</td> </tr> <tr> <td>More than One VOR Receiver</td> <td style="text-align: center;">q</td> </tr> <tr> <td>Automatic Direction Finder (ADF)</td> <td style="text-align: center;">r</td> </tr> <tr> <td>Distance Measuring Equipment (DME)</td> <td style="text-align: center;">s</td> </tr> <tr> <td>Area Navigation Equipment (RNAV)</td> <td style="text-align: center;">t</td> </tr> <tr> <td>Long Range Navigation Equipment</td> <td style="text-align: center;">u</td> </tr> <tr> <td>LORAN C VFR only</td> <td style="text-align: center;">v</td> </tr> <tr> <td>En route IFR</td> <td style="text-align: center;">w</td> </tr> <tr> <td>Terminal IFR</td> <td style="text-align: center;">x</td> </tr> <tr> <td>OMEGA-VLF</td> <td style="text-align: center;">y</td> </tr> <tr> <td>Other (Doppler INS, Other)</td> <td style="text-align: center;">z</td> </tr> <tr> <td>Radar Altimeter</td> <td style="text-align: center;">aa</td> </tr> <tr> <td>Weather Radar</td> <td style="text-align: center;">ab</td> </tr> <tr> <td>Thunderstorm Detection Equipment</td> <td style="text-align: center;">ac</td> </tr> <tr> <td>PRECISION APPROACH EQUIPMENT</td> <td style="text-align: center;">bb <input type="checkbox"/> Yes</td> </tr> <tr> <td>Localizer</td> <td style="text-align: center;">dd</td> </tr> <tr> <td>Marker Beacon</td> <td style="text-align: center;">ee</td> </tr> <tr> <td>Glide Slope</td> <td style="text-align: center;">ff</td> </tr> <tr> <td>Microwave Landing System</td> <td style="text-align: center;">gg</td> </tr> <tr> <td>No Precision Approach Equipment</td> <td style="text-align: center;">hh</td> </tr> <tr> <td>GUIDANCE AND CONTROL EQUIPMENT</td> <td style="text-align: center;">ii <input type="checkbox"/> Yes</td> </tr> <tr> <td>Flight Director</td> <td style="text-align: center;">kk</td> </tr> <tr> <td>Horizontal Situation Indicator (HSI)</td> <td style="text-align: center;">ll</td> </tr> <tr> <td>Electronic Flight Instrument System (EFIS)</td> <td style="text-align: center;">mm</td> </tr> <tr> <td>Flight Management Computer</td> <td style="text-align: center;">nn</td> </tr> <tr> <td>Autopilot</td> <td style="text-align: center;">oo</td> </tr> <tr> <td>1 Axis (Wing Leveler)</td> <td style="text-align: center;">pp</td> </tr> <tr> <td>2 Axis (Heading and Track)</td> <td style="text-align: center;">qq</td> </tr> <tr> <td>3 Axis (Heading, Track, and Altitude)</td> <td style="text-align: center;">rr</td> </tr> <tr> <td>Autoland</td> <td style="text-align: center;">ss</td> </tr> <tr> <td>Flight Data Recorder</td> <td style="text-align: center;">tt</td> </tr> <tr> <td>Emergency Locator Transponder</td> <td style="text-align: center;">uu</td> </tr> </table> <p>15 Comments — Your comments are invited to assist us in improving this survey. 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<p style="text-align: center;">Agency Display of Estimated Burden of the General Aviation Activity and Avionics Survey</p> <p>The public reporting burden for this collection of information is estimated to average 12 minutes for the 1989 and 1991 surveys and 9 minutes for the 1990 survey per response. If you wish to comment on the accuracy of the estimate or make suggestions for reducing this burden, please direct your comments to OMB and the FAA at the following addresses:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>OMB Office of Information and Regulatory Affairs Attention: OMB Desk Officer for FAA, Room 3208 Washington, D.C. 20503</p> </div> <div style="width: 45%;"> <p>U.S. DOT Federal Aviation Administration Statistical Analysis Branch, AMS-420 800 Independence Ave., Washington, D.C. 20591</p> </div> </div>																																																																																																																																																			

2. SURVEY COVERAGE

2.1 Aircraft

The General Aviation Activity and Avionics Survey covers, through a stratified probability sample, all general aviation aircraft registered in the United States. The term, "general aviation," used in this survey, is defined as all aircraft in the U.S. civil air fleet except those operated under Federal Aviation Regulations (FAR) Parts 121 and 127. FAR Part 121, as modified by Special Federal Aviation Regulation 38 (SFAR-38), governs air carriers carrying passengers and cargo for hire and conducting scheduled and charter operations with aircraft having a seating capacity of more than 30 seats and/or a payload capacity of more than 7,500 pounds. Thus, general aviation includes aircraft operated under:

Part 91: General operating and flight rules.

Part 125: Certification and operations: Airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more (but not for hire).

Part 133: Rotorcraft external load operations.

Part 135: Air taxi operators and commercial operators.

Part 137: Agricultural aircraft operations.

The term "general aviation" is not always defined in the same way from aviation publication to aviation publication, and thus is often a source of confusion to users of general aviation statistics. The point on which the various definitions disagree is under what categorization (air carrier or general aviation) do air taxis and commuter air carriers operating under FAR Part 135 belong. The GAAA Survey has always used the above definition for general aviation, which includes the air taxis, commuter air carriers and air travel clubs. Thus, it is essential for the user to understand thoroughly the definition of general aviation as it applies to the sources he or she is using so that proper comparisons of data can be made.

Certain aircraft meeting the general aviation criteria, though, have been excluded from the survey. This group consists of aircraft registered to dealers, aircraft in the process of being sold or with registration pending, and aircraft for which not enough information was available to categorize them properly for sampling purposes.

General aviation offers such varied services as air taxi, aircargo, industrial, agricultural, business, personal, recreational, instructional, research, patrol, and sport flying. General aviation aircraft range in complexity from simple gliders and balloons to four engine turbojets.

2.2 Geographic

The sample survey conducted by the FAA covers general aviation aircraft registered with the United States Aircraft Registry as of December 31, 1988. Over 99 percent of these aircraft are registered to owners living in the 50 states; Washington, D.C.; Puerto Rico; and other U.S. territories.¹

2.3 Content

The survey questionnaire, FAA Form 1800-54 shown previously in Figure B.1, requests the aircraft owner to provide the following information on the sampled aircraft's characteristics and uses for various periods:

- 1) hours by use, IFR hours, percentage of hours flown in Instrument Meteorological Conditions (IMC) and Visual Meteorological Conditions (VMC) during the day and evening, fuel consumption grade and cost, and number of local and cross-country landings for the entire calendar year, 1988;

- 2) airframe hour reading and the aircraft's base location as of December 31, 1988; and

- 3) avionics equipment currently on board.

3. **SURVEY METHOD**

The survey data was collected by mailing the questionnaire to the owners of the sampled aircraft in two mailings, with a prompting letter to nonrespondents after the second mailing. The first mailing in February 1989 covered all 28,141 aircraft in the sample and had a response rate of 39.3 percent as shown in Table B.1. This accounted for approximately 71 percent of the total responses to the survey. The second mailing conducted in April included only those aircraft in the sample that had not yet responded. The second mailing had a response rate of 20.8 percent which accounted for approximately 24 percent of the total responses to the survey. The prompting letter mailed in May was sent to the owners of the sampled aircraft who had

¹ Source: FAA Aircraft Registration Master File as of December 31, 1988.

not responded to the first or second mailings as of a specified date and after responses had trickled to a virtual halt. The prompting letter produced a "response rate" of 7.4 percent, or 4.7 percent of the total responses to the survey. The valid survey responses resulted in an overall a response rate of 55.5 percent.

TABLE B.1 SUMMARY OF RESPONSE INFORMATION

PHASE	VALID SAMPLE SIZE	# RESPONSES	RESPONSE RATE	%TOTAL RESPONSE
1st Mailing	28,141	11,069	39.3	70.9
2nd Mailing	18,383	3,815	20.8	24.4
Prompting Letter	9,835	731	7.4	4.7
TOTAL:	28,141	15,615	55.5	100.0

Each mailing was accompanied by a cover letter, shown respectively in Figures B.2 and B.3 at the back of this Appendix. The prompting letter is contained in Figure B.4 (see page B-15).

4. SAMPLE DESIGN

4.1 Sample Frame and Size

The FAA Mike Monroney Aeronautical Center in Oklahoma City maintains the Aircraft Registration Master File, which is the official record of registered civil aircraft in the United States. The sample frame, the list of aircraft from which the sample was selected, was provided by this organization based upon criteria specified by AMS-420.

Several changes which occurred between the 1977 and 1978 survey cycles impacted on the population and frame and, ultimately, the survey results. In January 1978, FAA implemented a new procedure, known as triennial revalidation, for maintaining its master file. Instead of requiring all aircraft owners to revalidate and update their aircraft registration annually, FAA only required revalidation for those aircraft owners who had not contacted the FAA registry for three years. This less frequent updating of the master file affected its accuracy and representativeness. Two major consequences for the survey results are discussed below.

1) The accuracy of owners' addresses has deteriorated, with the percentage of questionnaires returned by the post office more than triple the period from 1977 to 1982 (2 percent vs. 6.8 percent). Post office returns for 1988 were 8 percent, a dramatic improvement over

the nearly 13 percent for the previous year, yet still far worse than the 1977 figure. This deterioration partially explains the lower survey response rates experienced since 1977.

2) The master file contained a residue of aircraft which, under the old revalidation system, would have been deregistered and purged from the file but now remain under the new system. Consequently, the population counts were inflated resulting in artificially large increases in the estimates of the number of active general aviation aircraft from 1977 to 1978, and from 1978 to 1979.

Also during this period, the entire Aircraft Registration System was installed on a new computer system and, at the same time, FAA modified many of the updating and processing procedures. It is quite possible that these changes affected the registration file.

Finally, new legislation required two formerly ineligible categories of aircraft to be registered with the U.S. Registry.

The definition of a registered general aviation aircraft changed from 1977 to 1978 to include the two new groups:

1) aircraft owned by individual citizens of foreign countries who are permanent residents of the U.S., and

2) aircraft owned by non-U.S. corporations which are organized and doing business under U.S. law (as long as the aircraft are based and used primarily in the U.S.).

It is estimated that these aircraft comprise less than one half percent of the general aviation fleet.

These changes thus affected the contents of the Aircraft Registration Master File and, consequently, the GAAA Survey results. While it is difficult to quantify the effects of these changes, FAA estimates that they caused the survey results to overestimate aircraft population and hours flown by five percent or less.

The sample frame is comprised of all aircraft identified as general aviation in the master file (according to the definition in Section 2.1), with the following exceptions:

1) aircraft registered to dealers;

2) aircraft with "Sale Reported" or "Registration Pending" appearing in the record instead of the owner's name;

3) aircraft with a known, inaccurate owner's address; and

4) aircraft with missing state of registration, aircraft make-model-series code, or aircraft type information.

For calendar year 1988, the sample frame consisted of 259,434 general aviation aircraft records from which 28,141 records were sampled, yielding a 10.8 percent sample. Table B.2 shows, by aircraft type, the distribution of the sample compared to that of the population. This clearly demonstrates the disproportionality of the sample to the population, an intended result of the sample design to gain efficiency and to control errors.

4.2 Description of Sample Design

The sample design employed was a stratified, systematic design from a random start. The sample was selected from a two-way stratified frame matrix. The two stratification criteria were:

- 1) state or territory of aircraft registration, and
- 2) a variable called the make-model index, constructed from a combination of the aircraft type and the Service Difficulty Reporting (SDR) aircraft manufacturer/model group.

TABLE B.2 SAMPLE AND POPULATION DISTRIBUTION BY AIRCRAFT TYPE

TYPE	APPROXIMATE POPULATION	SAMPLE SIZE	SAMPLE AS % OF POPULATION
Fixed Wing - Piston			
1 Engine, 1-3 Seats	84,531	8,973	10.6
1 Engine, 4+ Seats	118,382	7,708	6.5
2 Engine, 1-6 Seats	17,511	2,293	13.1
2 Engine, 7+ Seats	8,806	1,856	21.1
Other Piston	181	107	59.1
Fixed Wing - Turboprop			
2 Engine 1-12 Seats	4,543	757	16.7
2 Engine 13+ Seats	1,010	399	39.5
Other Turboprop	230	107	46.5
Fixed Wing - Turbojet			
Engine	4,061	812	20.0
Other Turbojet	494	245	49.6
Rotorcraft			
Piston	5,334	2,078	39.0
Turbine	4,434	887	20.0
Other	<u>9,917</u>	<u>1,919</u>	<u>19.4</u>
TOTAL:	259,434	28,141	10.8

The 58 levels of the state criterion and the 371 levels of the make-model index yielded a matrix of 58 by 371 or 21,518 cells (strata) among which the frame was divided for sampling.

The FAA's primary requirement was for estimates of average annual flight hours per aircraft, necessitating optimal determination of sample sizes based on flight hour variation by state and by make-model index, and not on population. Hence, the sample was not proportional to size, and a sampling fraction was determined for each cell with a non-zero population. Sampling was then performed systematically from a random start within individual cells, yielding a final sample size of 28,141 general aviation aircraft.

Initially, each aircraft in the sample was given a weight which was the inverse of its cell's sampling fraction, and which corresponds to the number of aircraft in the sample frame represented by that aircraft. When all responses to the survey were tallied, each weight

was adjusted according to the response rate for the cell, counting an aircraft for which no survey questions were answered as a non-respondent, and an aircraft for which at least one question was answered as a respondent. The weight adjustment is described below:

- 1) non-respondents' weights were changed to zero; and
- 2) the weights of all responding aircraft were adjusted uniformly by dividing the initial weight by the response rate for the cell.

This method of weight adjustment has several attributes. It actually incorporates the response rates into the final weights and simplifies estimation procedures.

4.3 Error

Errors associated with estimates derived from sample survey results fall into two categories: sampling and non-sampling errors.² Sampling errors occur because the estimates are based on a sample--not the entire population. Non-sampling errors arise from a number of sources such as non-response, inability or unwillingness of respondents to provide correct information, differences in interpretation of questions, mistakes in recording or coding the data obtained, and others. The following sections discuss the two types of errors.

4.4 Sampling Error

In a designed survey, the sampling error associated with an estimate is generally unknown, but a measurable quantity, known as the standard error, is often used as a guide to the magnitude of sampling error. The standard error measures the variation which would occur among the estimates from all possible samples of the same design from the same population. It measures the precision with which an estimate approximates the average result of all possible samples or the result of a survey in which all elements of the population were sampled.

Through sample design techniques, the statistician can control the sizes of standard errors on a few key variables, known as design variables, in the survey. The design variables in the GAAA Survey are the average annual hours flown per aircraft by aircraft type, by aircraft manufacturer/model characteristics, and by state of aircraft registration. The sample is designed to produce standard errors on

² Standards for Discussion and Presentation of Errors in Data,
U.S. Department of Commerce, Bureau of the Census, (Washington,
DC, 1974), pp. 11-14.

these variables at levels specified by the FAA. No controls are placed on the standard errors of the non-design variables.

Thus, every estimate resulting from a sample survey, whether it be for a design or non-design variable, has sampling error associated with it. The user of survey results must consider sampling error along with the point estimate itself when making inferences or drawing conclusions about the sample population. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. To facilitate the comparison of estimates and their errors, the tables in this publication display standard errors for all estimated quantities. In most cases, the tables contain the percent standard error, which is the standard error multiplied by 100 and divided by the corresponding estimate. The paragraphs below explain the proper interpretation and use of the errors.

An estimate and its standard error make it possible to construct an interval estimate with the prescribed confidence that the interval will include the average value of the estimate from all possible samples of the population. Table B.3 below shows selected interval widths and their corresponding confidence.

TABLE B.3 CONFIDENCE OF INTERVAL ESTIMATES

<u>WIDTH OF INTERVAL</u>	<u>APPROXIMATE CONFIDENCE THAT INTERVAL INCLUDES AVERAGE VALUE</u>
1 Standard error	68%
2 Standard error	95%
3 Standard error	99%

For the most part, the measure of precision presented in this report is the percent standard error (% s.e.). As explained above, this statistic is merely the ratio of the standard error to the estimate times 100 (to convert the fraction to a percent). In addition to immediately communicating the relative precision of the estimate, it allows ready comparison of the survey's performance across variables. The following is an example of how to use the % s.e.: from Table 2.1, a 95 percent confidence interval for the number of active rotorcraft with piston engines would be 2,584 plus or minus $2(7.9/100)(2,584)$ or the interval between 2,176 and 2,992. One would say that the number

of active rotorcraft with piston engines lies somewhere between 2,176 and 2,992 with 95 percent confidence. Another way of expressing this is that we are highly confident (95 percent) that the number of active rotorcraft with piston engines is within plus or minus 2(7.9) percent, or 15.8 percent of 2,584.

4.5 Non-Sampling Error

Non-sampling error can be reduced through survey design, although the amount of reduction is difficult, if not impossible, to quantify in any given design. There are, however, various techniques which can limit non-sampling error. Several of these techniques were incorporated into the design of the GAAA Survey and are itemized below:

1) A second mailing and a prompting (reminder) letter to non-respondents were conducted in addition to the original mailing in order to improve the response rate, since a low response rate is a major cause of non-sampling error. A total of 55.5 percent of the sampled aircraft responded to at least one question of the survey. The 1988 response rate marks a decline from the 80 percent response rate achieved in 1977, the first year of the survey, and from the 61.1 percent response from the previous survey in which a third mailout was performed. Possible causes for the decrease in the sample rate response include:

o The deterioration of the currency of aircraft owners' addresses in the Aircraft Registration Master File, the sample frame. This caused a gradual increase in the percentage of questionnaires returned undelivered by the postmaster.

o Repeated sampling of aircraft in two and possibly three or four successive years. Due to the design of the sample to achieve specified precision in estimates for states and manufacturer/model groups of aircraft, it is impossible to avoid sampling some of the same aircraft in consecutive years. Owners of such aircraft may have been less willing to respond in 1988 than in previous years.

Table B.4 reveals the responses by aircraft type. Similar to last year, only two aircraft types had response rates less than 40 percent, the fixed wing, two engine piston aircraft with seven or more seats and the "Other" piston group.

2) The survey questionnaire was designed and pretested to minimize misinterpretation of questions by the aircraft owners.

3) To assure the owners of the confidentiality of their responses, the questionnaire cover letter informed them that:

"The survey conforms to the legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The FAA has determined that the information you provide in this survey is exempt from public disclosure under the Freedom of Information Act."³

4) Comprehensive editing procedures insured the accuracy of the data transcription to machine readable form and the internal consistency of responses.

5) The official and most accurate source of information available on the general aviation fleet, the FAA Aircraft Registration Master File, was used as the sampling frame.

TABLE B.4 RESPONSE RATE BY AIRCRAFT TYPE

<u>AIRCRAFT TYPE</u>	<u>RESPONSE RATE</u>
Fixed Wing - Piston	
1 Engine, 1-3 Seats	60.1%
1 Engine, 4+ Seats	59.8
2 Engine, 1-6 Seats	53.8
2 Engine, 7+ Seats	36.4
Other Piston	24.3
Fixed Wing - Turboprop	
2 Engine 1-12 Seats	55.5
2 Engine 13+ Seats	40.4
Other Turboprop	43.0
Fixed Wing - Turbojet	
2 Engine	59.4
Other Turbojet	52.2
Rotorcraft	
Piston	47.1
Turbine	49.4
Other	53.3

³ See Figure B.2.



U.S. Department
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**Federal Aviation
Administration**

Figure B.2 First Cover Letter

800 Independence Ave., S.W.
Washington, D.C. 20591

February 1989

Dear Aircraft Owner:

We need your help!

We at FAA know very little about the activity of general aviation that occurs outside the air traffic control system. To fill this gap, for the last ten years we have been conducting a voluntary sample survey of general aviation aircraft owners.

Your responses to the survey, along with accident information, are used to determine accident rates. They help measure the safety of general aviation flying and help to pinpoint specific safety problems. We use the survey information to determine the impact of proposed changes to some of our regulations. The information is also used in forecasting our future work force and new facility (runways, landing aids, etc.) requirements. These are just a few examples of the many and varied uses we make of your responses to the survey.

The enclosed 1988 General Aviation Activity and Avionics Survey questionnaire requests data for calendar year 1988. See the "What to do if" section on the general information sheet for a more detailed explanation of who should respond or how to respond.

I urge you to complete the questionnaire and return it promptly. Help us know more about general aviation flying so that we can do a better job of serving you.

I promise you that your responses will be kept confidential.

Sincerely,

Bert LaCroix
Bert LaCroix

Manager, Management Standards and Statistics Division

Enclosure



U.S. Department
of Transportation
**Federal Aviation
Administration**

Figure B.3 Second Cover Letter

800 Independence Ave., S.W.
Washington, D. C. 20591

March 1989

Dear Aircraft Owner:

We still need your help!

In February, we sent general aviation aircraft owners a questionnaire asking for information on the use and characteristics of their aircraft. You were one of the 30,000 aircraft owners selected at random to receive a questionnaire.

As of this date, we have not received your response. If the survey questionnaire has been lost or misplaced, another copy is enclosed for your convenience. See the "What to do if" section on the general information sheet for a more detailed explanation of who should respond or how to respond.

Your cooperation in responding to the survey will benefit not only the FAA, but also the entire aviation community.

The timeliness of your response is very important. We will be unable to include your response in the survey statistics if your response fails to reach us in time. Please return your survey form within 3 days.

If you have already responded, disregard this notice. We appreciate your cooperation.

Sincerely,

Bert LaCroix
Manager, Management Standards and Statistics Division

Enclosure



U.S. Department
of Transportation
**Federal Aviation
Administration**

Figure B.4 Prompting Letter

800 Independence Ave., S.W.
Washington, D.C. 20591

May 1989


Dear Aircraft Owner:

In February and later in March, we sent general aviation aircraft owners a questionnaire (FAA Form 1800-54) asking for information on the use and characteristics of their aircraft. You were one of the 30,000 aircraft owners selected randomly to receive a questionnaire.

As of this date, we have not received your response. Your timeliness of response is very important. We will not be able to include data of your aircraft in the annual statistics survey if your response fails to reach us in time. Please return the survey questionnaire today.

If you have already responded, please disregard this notice. We appreciate your cooperation.

Sincerely


Bert LaCroix
Manager, Management Standards
and Statistics Division

SDR AIRCRAFT GROUP NAME
FAA MANUFACTURER/MODEL CODES

C-1

APPENDIX C

SDR AIRCRAFT GROUP NAME
FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
BAG DH125	4230170	BEECH 17	1150524	BEECH 23	1151212	BEECH 45	1152002	BEECH 90	1152912	BEECH 90	1152912
BALWKSIFIREFY	1050100	BEECH 17	1150530	BEECH 23	1151214	BEECH 45	1152006	BEECH 90	1152913	BEECH 90	1152913
BALWKSIFIREFY	1050101	BEECH 17	1150534	BEECH 23	1151215	BEECH 45	1152008	BEECH 90	1152914	BEECH 90	1152914
BALWKSIFIREFY	1050103	BEECH 17	1150538	BEECH 23	1151216	BEECH 45	1152010	BEECH 90	1152923	BEECH 90	1152923
BALWKSIFIREFY	1050104	BEECH 17	1150550	BEECH 23	1151226	BEECH 45	1152012	BEECH 95	1153402	BEECH 95	1153402
BALWKSIFIREFY	1050107	BEECH 17	1150554	BEECH 23	1151240	BEECH 45	1152013	BEECH 95	1153404	BEECH 95	1153404
BALWKSIFIREFY	1050109	BEECH 17	1150556	BEECH 23	1151242	BEECH 45	1152014	BEECH 95	1153406	BEECH 95	1153406
BALWKSIFIREFY	1050110	BEECH 17	1150558	BEECH 23	1151250	BEECH 50	1152502	BEECH 95	1153408	BEECH 95	1153408
BALWKSIFIREFY	10501A9	BEECH 17	1150564	BEECH 23	1151252	BEECH 50	1152506	BEECH 95	1153410	BEECH 95	1153410
BARNADD31	1030104	BEECH 18	1150202	BEECH 23	1151253	BEECH 50	1152510	BEECH 99	1154002	BEECH 99	1154002
BARTLTL13	1050102	BEECH 18	1150204	BEECH 23	1151254	BEECH 50	1152512	BEECH 99	1154003	BEECH 99	1154003
BBAVIA11	0191102	BEECH 18	1150702	BEECH 300	1152930	BEECH 50	1152516	BEECH 99	1154004	BEECH 99	1154004
BBAVIA11	0191104	BEECH 18	1150902	BEECH 33	1151402	BEECH 50	1152518	BEECH 99	1154006	BEECH 99	1154006
BBAVIA11	0191106	BEECH 18	1150904	BEECH 33	1151404	BEECH 50	1152520	BELL 204	1181401	BELL 204	1181401
BBAVIA11	0191108	BEECH 18	1150909	BEECH 33	1151406	BEECH 50	1152522	BELL 204	1181404	BELL 204	1181404
BBAVIA11	0191112	BEECH 18	1150911	BEECH 33	1151408	BEECH 50	1152524	BELL 204	1181405	BELL 204	1181405
BBAVIA11	9140404	BEECH 18	1150912	BEECH 33	1151410	BEECH 50	1152526	BELL 204	1181407	BELL 204	1181407
BBAVIA402	2110204	BEECH 18	1150913	BEECH 33	1151422	BEECH 50	1152530	BELL 204	1181408	BELL 204	1181408
BBAVIA7	2110102	BEECH 18	1151001	BEECH 33	1151423	BEECH 50	1152532	BELL 204	1181410	BELL 204	1181410
BBAVIA7	2110106	BEECH 18	1151004	BEECH 33	1151424	BEECH 50	1152534	BELL 204	1181411	BELL 204	1181411
BBAVIA7	2110108	BEECH 18	1151006	BEECH 33	1151425	BEECH 50	1152536	BELL 204	118141G	BELL 204	118141G
BBAVIA7	2110116	BEECH 18	1151007	BEECH 33	1151432	BEECH 55	1152702	BELL 204	118141M	BELL 204	118141M
BBAVIA7	2110120	BEECH 18	1151008	BEECH 33	1151434	BEECH 55	1152704	BELL 206	1181502	BELL 206	1181502
BBAVIA7	2110124	BEECH 18	1151010	BEECH 35	1151435	BEECH 55	1152706	BELL 206	1181503	BELL 206	1181503
BBAVIA7	2110126	BEECH 18	1151011	BEECH 35	1151502	BEECH 55	1152708	BELL 206	1181504	BELL 206	1181504
BBAVIA7	2110130	BEECH 18	1151012	BEECH 35	1151504	BEECH 55	1152729	BELL 206	1181506	BELL 206	1181506
BBAVIA7	21101M	BEECH 18	1151013	BEECH 35	1151506	BEECH 55	1152730	BELL 206	1181508	BELL 206	1181508
BBAVIA7	21101N8	BEECH 18	1151014	BEECH 35	1151508	BEECH 55	1152732	BELL 206	1181511	BELL 206	1181511
BBAVIA7	21101NG	BEECH 18	1151016	BEECH 35	1151510	BEECH 56	1152736	BELL 206	1181522	BELL 206	1181522
BBAVIA7	21101NN	BEECH 18	1151018	BEECH 35	1151512	BEECH 56	1152738	BELL 206	1181579	BELL 206	1181579
BBAVIA7	21101NS	BEECH 18	1151019	BEECH 35	1151514	BEECH 58	1152740	BELL 206	1182107	BELL 206	1182107
BBAVIA7	21101P3	BEECH 18	1151020	BEECH 35	1151516	BEECH 58	1152744	BELL 206	1182108	BELL 206	1182108
BBAVIA7	21101PH	BEECH 18	1151021	BEECH 35	1151518	BEECH 58	1152746	BELL 212	1181420	BELL 212	1181420
BBAVIA7	21101PK	BEECH 18	1151022	BEECH 35	1151520	BEECH 60	1153602	BELL 214	1182100	BELL 214	1182100
BBAVIA7	21101PN	BEECH 18	1151023	BEECH 35	1151522	BEECH 60	1153604	BELL 214	1182105	BELL 214	1182105
BBAVIA7	21101PT	BEECH 18	1151024	BEECH 35	1151524	BEECH 60	1153605	BELL 214	1182106	BELL 214	1182106
BBAVIA7	21101PY	BEECH 18	1151026	BEECH 35	1151526	BEECH 65	1152802	BELL 222	1182122	BELL 222	1182122
BBAVIA8	1220803	BEECH 18	1151040	BEECH 35	1151528	BEECH 65	1152803	BELL 222	1182124	BELL 222	1182124
BBAVIA8	2110612	BEECH 18	1151042	BEECH 35	1151530	BEECH 65	1152805	BELL 222	1182140	BELL 222	1182140
BCRAFTB	1110102	BEECH 18	1151044	BEECH 35	1151532	BEECH 76	1153005	BELL 412	1182202	BELL 412	1182202
BEAGLE121	1120424	BEECH 1900	1154160	BEECH 35	1151538	BEECH 77	1153007	BELL 47	1180604	BELL 47	1180604
BEAGLE121	1120425	BEECH 1900	1154161	BEECH 35	1151544	BEECH 80	1152806	BELL 47	1180606	BELL 47	1180606
BEECH 100	1152915	BEECH 200	1152920	BEECH 35	1151546	BEECH 80	1152807	BELL 47	1180702	BELL 47	1180702
BEECH 100	1152916	BEECH 200	1152922	BEECH 35	1151548	BEECH 80	1152808	BELL 47	1180802	BELL 47	1180802
BEECH 100	1152919	BEECH 200	1152924	BEECH 36	1151602	BEECH 80	1152809	BELL 47	1180808	BELL 47	1180808
BEECH 1074	1151606	BEECH 200	1152926	BEECH 36	1151603	BEECH 80	1152812	BELL 47	1180809	BELL 47	1180809
BEECH 17	1150504	BEECH 200	1152928	BEECH 36	1151604	BEECH 90	1152904	BELL 47	1180810	BELL 47	1180810
BEECH 17	1150508	BEECH 23	1151202	BEECH 36	1151605	BEECH 90	1152907	BELL 47	1180813	BELL 47	1180813
BEECH 17	1150512	BEECH 23	1151204	BEECH 36	1151607	BEECH 90	1152908	BELL 47	1180816	BELL 47	1180816
BEECH 17	1150518	BEECH 23	1151208	BEECH 36	1151609	BEECH 90	1152909	BELL 47	1180820	BELL 47	1180820
BEECH 17	1150524	BEECH 23	1151212	BEECH 45	1152002	BEECH 90	1152912	BELL 47	1180822	BELL 47	1180822

APPENDIX C

SDR AIRCRAFT GROUP NAME
FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
BELL 47	1180822	BELL 47	2390301	BLANCA7	2110136	BOEING42	9420106	BOEINGB17	1380202		
BELL 47	1180843	BELL 47	8930102	BLANCA7	2110140	BOEING707	138365B	BOEINGB17	1380204		
BELL 47	1180844	BELL 47	8930103	BLANCA7	2110144	BOEING707	138367A	BOEINGC97	1381604		
BELL 47	1180845	BELL 47	8930105	BLANCA7	2110148	BOEING707	138367D	BOEINGC97	1381605		
BELL 47	118084C	BELL OH13H	2390204	BLANCA7	2110150	BOEING707	138367F	BOEINGYLI15	1380810		
BELL 47	118084G	BELL P63	1180202	BLANCA7	2110154	BOEING707	138367Y	BOEINGX47	4090202		
BELL 47	118084R	BELL P63	1180204	BLANCA7	2110158	BOEING707	138368D	BOLKMS105	5626005		
BELL 47	118084V	BELL 204	1181402	BLANCA7	2110160	BOEING720	1383810	BOLKMS105	5626006		
BELL 47	1180904	BIMONDC91	2370152	BLANCA7	2110162	BOEING720	1383845	BOLKMS105	5626020		
BELL 47	1181001	BLANCA11	0191110	BLANCA7	2110164	BOEING720	1383857	BOLKMS117	5626010		
BELL 47	1181002	BLANCA1412	1200902	BLANCA7	2110166	BOEING720	1383873	BOLKMS117	5626012		
BELL 47	1181003	BLANCA1413	1201002	BLANCA7	2110168	BOEING727	1384006	BOLKMS117	5626015		
BELL 47	1181005	BLANCA1413	1201004	BLANCA7	2110170	BOEING727	1384008	BOLKMS209	5626007		
BELL 47	1181006	BLANCA1413	1201006	BLANCA7	2110172	BOEING727	138400H	BOLKOWJR	1400202		
BELL 47	1181008	BLANCA1419	1220402	BLANCA7	21101MA	BOEING727	138400K	BRAERODH125	1500205		
BELL 47	118100V	BLANCA1419	1220404	BLANCA7	21101ML	BOEING727	1384012	BRAERODH125	1500285		
BELL 47	1181011	BLANCA1419	1220406	BLANCA7	21101N2	BOEING727	1384017	BRASOVIS28	4490102		
BELL 47	1181012	BLANCA1419	1220408	BLANCA7	21101N7	BOEING727	1384036	BRASOVIS28	4490103		
BELL 47	1181013	BLANCA1419	3080102	BLANCA7	21101NB	BOEING727	138408D	BRASOVIS29	4490106		
BELL 47	1181014	BLANCA1419	3080104	BLANCA7	21101NM	BOEING727	138408J	BRWSTRFLEET1	1462004		
BELL 47	1181023	BLANCA1419	3080106	BLANCA7	21101NX	BOEING727	138408S	BRWSTRFLEET1	1461104		
BELL 47	1181024	BLANCA1419	3080108	BLANCA7	21101PC	BOEING727	1384101	BRWSTRFLEET2	1461202		
BELL 47	1181025	BLANCA1419	3080112	BLANCA8	1220801	BOEING747	1384871	BRWSTRFLEET2	1461204		
BELL 47	1181026	BLANCA1419	3080114	BLANCAPACMKR	1200202	BOEING747	1384873	BRWSTRFLEET7	1461502		
BELL 47	1181027	BLANCA1419	3080116	BLANCAPACMKR	1200702	BOEING75	1380102	BRWSTRFLEET7	1461504		
BELL 47	1181028	BLANCA1419	3080118	BLANCA7	1200602	BOEING75	1380104	BRWSTRFLEET7	1461512		
BELL 47	1181029	BLANCA1419	3080122	BNORM BN2	1520202	BOEING75	1380105	BRWSTRFLEET8	1461802		
BELL 47	1181030	BLANCA1419	3080124	BNORM BN2	1520204	BOEING75	1380106	BRWSTRFLEET8	1461804		
BELL 47	1181031	BLANCA1419	3080126	BNORM BN2	1520205	BOEING75	1380108	BRWSTRFLEET9	1461902		
BELL 47	1181032	BLANCA1419	4580806	BNORM BN2	1520207	BOEING75	1380112	BUHL CA3	1650302		
BELL 47	1181033	BLANCA1419	4580808	BNORM BN2	1520209	BOEING75	1380116	BUHL LA1	1651002		
BELL 47	1181034	BLANCA149	1200802	BNORM BN2	1520210	BOEING75	1380118	BUKER 131	1590104		
BELL 47	1181032	BLANCA149	1200804	BNORM BN2	1520215	BOEING75	1380120	BUKER 131	1590114		
BELL 47	1181060	BLANCA17	1220432	BNORM BN2	1520220	BOEING75	1380122	BUKER 133	1590326		
BELL 47	1181061	BLANCA17	1220433	BNORM BN2	1520221	BOEING75	1380124	BURNS BA42	05601D3		
BELL 47	1181062	BLANCA17	1220434	BNORM BN2	1520226	BOEING75	1380131	BUSHMS2000	0350406		
BELL 47	1181063	BLANCA17	1220435	BNORM BN2	1520227	BOEING75	1380132	BUTLERBRAWK	1720102		
BELL 47	1181065	BLANCA17	1220436	BNORM BN2	1520302	BOEING75	1380134	CAMAIR480	1890102		
BELL 47	1181066	BLANCA17	1220437	BNORM BN2	1520350	BOEING75	1380136	CAMROND50	1880114		
BELL 47	1181068	BLANCA51	1225051	BNORM BN2	7080221	BOEING75	1380137	CAMRONDELO	1880260		
BELL 47	1181069	BLANCA7	1220438	BNORM BN2MK3	1520203	BOEING75	1380138	CAMRONDELO	1880245		
BELL 47	1181071	BLANCA7	1220460	BNORM BN2MK3	1520208	BOEING75	1380140	CAMRONDELO	1880104		
BELL 47	1181102	BLANCA7	1220501	BOARD XJL1	2320104	BOEING75	1380144	CAMRONDELO	1880108		
BELL 47	1181104	BLANCA7	1220601	BOEING100	1381902	BOEING75	1380146	CAMRONDELO	1880110		
BELL 47	1181106	BLANCA7	1220701	BOEING107	9420602	BOEING75	1380148	CAMRONDELO	1880112		
BELL 47	1181202	BLANCA7	2110104	BOEING107	9420604	BOEING75	1380150	CAMRONDELO	1880113		
BELL 47	1181310	BLANCA7	2110110	BOEING234	1385049	BOEING75	1380152	CAMRONDELO	1880120		
BELL 47	2390101	BLANCA7	2110112	BOEING42	1385006	BOEING75	1380154	CAMRONDELO	1880122		
BELL 47	2390202	BLANCA7	2110114	BOEING42	9420102	BOEING767	1385205	CAMRONDELO	1880201		
BELL 47	2390301	BLANCA7	2110136	BOEING42	9420106	BOEINGB17	1380202	CAMRONDELO	1880202		

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CAMRONMODELO	1880202	CESSNA172	2072421	CESSNA182	2075806	CESSNA206	2073350	CESSNA305	2074028
CAMRONMODELO	1880203	CESSNA172	2072424	CESSNA182	2075814	CESSNA206	2073352	CESSNA305	2074030
CAMRONMODELO	1880204	CESSNA172	2072426	CESSNA182	2075816	CESSNA206	2073353	CESSNA310	2074202
CAMRONMODELO	1880205	CESSNA172	2072429	CESSNA185	2072802	CESSNA206	2073356	CESSNA310	2074204
CAMRONMODELO	1880225	CESSNA172	2072430	CESSNA185	2072804	CESSNA206	2073357	CESSNA310	2074206
CARMAM200	1981008	CESSNA172	2072431	CESSNA185	2072806	CESSNA207	2073602	CESSNA310	2074208
CASA C212	2410200	CESSNA172	2072432	CESSNA185	2072808	CESSNA207	2073604	CESSNA310	2074210
CASA C212	2410202	CESSNA172	2072434	CESSNA185	2072812	CESSNA207	2073612	CESSNA310	2074212
CASA C212	2410204	CESSNA172	2072436	CESSNA185	2072816	CESSNA207	2073614	CESSNA310	2074214
CASA C212	2410302	CESSNA172	2072437	CESSNA185	2072818	CESSNA208	2073701	CESSNA310	2074216
CASA C212	2410304	CESSNA172	2072438	CESSNA185	2072820	CESSNA208	2073702	CESSNA310	2074218
CCOPTR47BELL	2390303	CESSNA175	2072502	CESSNA185	2072821	CESSNA208	2073703	CESSNA310	2074220
CCOPTR47BELL	2390304	CESSNA175	2072504	CESSNA188	2073002	CESSNA210	2073402	CESSNA310	2074222
CCOPTR47BELL	2390305	CESSNA175	2072506	CESSNA188	2073004	CESSNA210	2073404	CESSNA310	2074224
CENTRL26	0180604	CESSNA175	2072508	CESSNA188	2073005	CESSNA210	2073406	CESSNA310	2074226
CESSNA120	2071402	CESSNA177	2073704	CESSNA188	2073006	CESSNA210	2073408	CESSNA310	2074228
CESSNA140	2071602	CESSNA177	2073706	CESSNA188	2073007	CESSNA210	2073410	CESSNA310	2074230
CESSNA140	2071604	CESSNA177	2073708	CESSNA188	2073008	CESSNA210	2073412	CESSNA310	2074234
CESSNA150	2071802	CESSNA177	2073709	CESSNA188	2073010	CESSNA210	2073414	CESSNA310	2074238
CESSNA150	2071804	CESSNA180	2072602	CESSNA188	2073012	CESSNA210	2073416	CESSNA310	2074240
CESSNA150	2071806	CESSNA180	2072604	CESSNA190	2072902	CESSNA210	2073418	CESSNA310	2074242
CESSNA150	2071808	CESSNA180	2072606	CESSNA195	2073102	CESSNA210	2073422	CESSNA310	2074244
CESSNA150	2071810	CESSNA180	2072608	CESSNA195	2073106	CESSNA210	2073430	CESSNA310	2074245
CESSNA150	2071812	CESSNA180	2072610	CESSNA195	2073108	CESSNA210	2073432	CESSNA310	2074246
CESSNA150	2071814	CESSNA180	2072612	CESSNA195	2073110	CESSNA210	2073436	CESSNA320	2074502
CESSNA150	2071816	CESSNA180	2072614	CESSNA195	2073112	CESSNA210	2073438	CESSNA320	2074504
CESSNA150	2071818	CESSNA180	2072616	CESSNA205	2073202	CESSNA210	2073439	CESSNA320	2074506
CESSNA150	2071820	CESSNA180	2072618	CESSNA205	2073204	CESSNA210	2073440	CESSNA320	2074508
CESSNA150	2071822	CESSNA180	2072622	CESSNA206	2073302	CESSNA210	2073446	CESSNA320	2074510
CESSNA150	2071824	CESSNA180	2072624	CESSNA206	2073304	CESSNA210	2073447	CESSNA320	2074512
CESSNA150	2071826	CESSNA182	2072702	CESSNA206	2073306	CESSNA210	2073448	CESSNA320	2074514
CESSNA150	2071828	CESSNA182	2072704	CESSNA206	2073308	CESSNA210	2073449	CESSNA320	2074516
CESSNA150	2071830	CESSNA182	2072706	CESSNA206	2073309	CESSNA210	2073450	CESSNA325	2074802
CESSNA150	2071831	CESSNA182	2072708	CESSNA206	2073310	CESSNA210	2073451	CESSNA335	2075601
CESSNA150	2071835	CESSNA182	2072710	CESSNA206	2073311	CESSNA210	2073453	CESSNA336	2075602
CESSNA150	2071836	CESSNA182	2072712	CESSNA206	2073312	CESSNA210	2073454	CESSNA337	2075702
CESSNA170	2072302	CESSNA182	2072714	CESSNA206	2073313	CESSNA210	2073455	CESSNA337	2075704
CESSNA170	2072304	CESSNA182	2072716	CESSNA206	2073316	CESSNA210	2073456	CESSNA337	2075706
CESSNA170	2072306	CESSNA182	2072718	CESSNA206	2073318	CESSNA210	2073459	CESSNA337	2075707
CESSNA172	2072202	CESSNA182	2072722	CESSNA206	2073322	CESSNA303	2073820	CESSNA337	2075712
CESSNA172	2072402	CESSNA182	2072724	CESSNA206	2073324	CESSNA305	2073902	CESSNA337	2075714
CESSNA172	2072404	CESSNA182	2072726	CESSNA206	2073332	CESSNA305	2074002	CESSNA337	2075717
CESSNA172	2072406	CESSNA182	2072728	CESSNA206	2073333	CESSNA305	2074003	CESSNA337	2075719
CESSNA172	2072408	CESSNA182	2072730	CESSNA206	2073334	CESSNA305	2074004	CESSNA337	2075721
CESSNA172	2072410	CESSNA182	2072731	CESSNA206	2073338	CESSNA305	2074005	CESSNA337	2075723
CESSNA172	2072412	CESSNA182	2072732	CESSNA206	2073340	CESSNA305	2074006	CESSNA337	2075724
CESSNA172	2072413	CESSNA182	2072734	CESSNA206	2073342	CESSNA305	2074008	CESSNA337	2075725
CESSNA172	2072414	CESSNA182	2072735	CESSNA206	2073344	CESSNA305	2074014	CESSNA337	2075726
CESSNA172	2072418	CESSNA182	2072736	CESSNA206	2073346	CESSNA305	2074016	CESSNA337	2075727
CESSNA172	2072420	CESSNA182	2075802	CESSNA206	2073348	CESSNA305	2074018	CESSNA337	2075730
CESSNA172	2072421	CESSNA182	2075806	CESSNA206	2073350	CESSNA305	2074028	CESSNA337	2075731

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CESSNA337	2075731	CNDAIRCL600	1900304	CURTISROBIN	2620806	CVAC	30	DHAV	DHC1	DHAV	DHC1	DHAV	DHC1
CESSNA337	2075732	CNDAIRCL600	1900305	CURTISROBIN	2620808	CVAC	340	DHAV	DHC1	DHAV	DHC1	DHAV	DHC1
CESSNA337	2075733	CNDAIRCL600	1900812	CURTISROBIN	2620812	CVAC	340	DHAV	DHC1	DHAV	DHC1	DHAV	DHC1
CESSNA340	2076404	CNTRAR101	1900102	CURTISSEDAN	2620904	CVAC	340	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA340	2076405	CNTRAR101	1900104	CURTISTRVAIR	2621004	CVAC	440	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA401	207590C	COAIRE3C	2350102	CURTISTRVAIR	2621006	CVAC	440	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA401	207590D	COAIRE3C	2350104	CURTISTRVAIR	2621010	CVAC	B24	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA401	207590E	COAIRE5C	2350202	CURTISTRVAIR	2621012	CVAC	BT13	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA402	207590K	COLT 240A	2300180	CURTISTRVAIR	2621104	CVAC	BT13	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA402	207590L	COLT 77A	2300102	CURTISTRVAIR	2621108	CVAC	BT13	DHAV	DHC2	DHAV	DHC2	DHAV	DHC2
CESSNA402	207590M	COMWTH175	2370402	CURTISTRVAIR	2621204	CVAC	BT13	DHAV	DHC3	DHAV	DHC3	DHAV	DHC3
CESSNA402	207590P	COMWTH180	2370502	CURTISTRVAIR	2621302	CVAC	BT13	DHAV	DHC4	DHAV	DHC4	DHAV	DHC4
CESSNA402	207590R	COMWTH180	2370504	CURTISTRVAIR	2621304	CVAC	BT13	DHAV	DHC4	DHAV	DHC4	DHAV	DHC4
CESSNA404	2075901	COMWTH185	2370602	CURTISTRVAIR	2621308	CVAC	BT13	DHAV	DHC6	DHAV	DHC6	DHAV	DHC6
CESSNA411	2075902	COMWTH185	2370604	CURTISTRVAIR	2621402	CVAC	BT13	DHAV	DHC6	DHAV	DHC6	DHAV	DHC6
CESSNA411	2075904	COMWTH185	2370608	CURTISTRVAIR	2621404	CVAC	BT13	DHAV	DHC7	DHAV	DHC7	DHAV	DHC7
CESSNA414	2075907	COMWTH190	2370704	CURTISTRVAIR	2621502	CVAC	BT15	DHAV	DHC8	DHAV	DHC8	DHAV	DHC8
CESSNA414	2075908	COMWTH7000	2371206	CURTISTRVAIR	2621506	CVAC	BT15	DHAV	DHC8	DHAV	DHC8	DHAV	DHC8
CESSNA421	2076010	COMWTH9000	2371422	CURTISTRVAIR	2621508	CVAC	BT15	DHAV	DHC8	DHAV	DHC8	DHAV	DHC8
CESSNA421	2076012	CONAERC1	5110102	CURTISTRVAIR	2621606	CVAC	L13	DHAVXXDH82		DHAVXXDH89		DHAVXXDH89	
CESSNA421	2076014	CONAERC2	5110202	CURTISTRVAIR	2621606	CVAC	L13	DOMION800		DOMION800		DOMION800	
CESSNA421	2076016	CONAERLA4	2400102	CURTISTRVAIR	2621702	CVAC	P4Y	DORNER133		DORNER133		DORNER133	
CESSNA425	2076018	CONAERLA4	2400108	CURTISTRVAIR	2621704	CVAC	PBY5	DORNERDO228		DORNERDO228		DORNERDO228	
CESSNA441	2076020	CONAERLA4	5110302	CURTISTRVAIR	2621802	CVAC	PBY5	DORNERDO228		DORNERDO228		DORNERDO228	
CESSNA450	2076602	CONAERLA4	5110304	CURTISTRVAIR	2621804	CVAC	PBY5	DORNERDO228		DORNERDO228		DORNERDO228	
CESSNA500	2076604	CONAERLA4	5110306	CURTISTRVAIR	2621806	CVAC	PBY6	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNA500	2076606	CONAERLA4	5110310	CURTISTRVAIR	2621808	CVAC	STC580	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNA500	2076607	CONAERLA4	5110312	CURTISTRVAIR	2621810	CVAC	STC580	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNA501	2076605	CONAERLA4	5110320	CURTISTRVAIR	2621814	CVAC	STC580	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNA650	2076802	CORCRNGLIDER	2480122	CURTISTRVAIR	2621818	CVAC	STC580	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNA650	2070502	CORCRNGLIDER	2480124	CURTISTRVAIR	2621820	CVAC	STC580	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNAAT303	2073803	CORCRNGLIDER	2480126	CURTISTRVAIR	2621822	CVAC	STC580	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNAAT37	2074321	CUNHAMPT6	2580104	CURTISTRVAIR	2621824	CVAC	STC640	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNAAT50	2071302	CURTIS22	2620202	CURTISTRVAIR	2621826	CVAC	STC640	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNAAT50	2071306	CURTISC46	2622601	CURTISTRVAIR	2621830	DART	G	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNAAT50	2071308	CURTISC46	2622602	CURTISTRVAIR	2621902	DART	G	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNAUC77	2070702	CURTISC46	2622604	CURTISTRVAIR	2621904	DART	G	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNAUC94	2070802	CURTISC46	2622608	CURTISTRVAIR	2621908	DART	G	DORNERDO28		DORNERDO28		DORNERDO28	
CESSNAUC94	2070902	CURTISC46	2622610	CURTISTRVAIR	2623302	DAVIS	D1	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNAUC94	2071002	CURTISC46	2622701	CVAC	240	DAVIS	D1	DORNERDO27		DORNERDO27		DORNERDO27	
CESSNAUC94	2071102	CURTISC46	2622702	CVAC	240	DAVIS	D1	DORNERDO27		DORNERDO27		DORNERDO27	
CHILD S1	0110100	CURTISC46	2622708	CVAC	240	DAVIS	V3	DORNERDO27		DORNERDO27		DORNERDO27	
CHILD S1	0110301	CURTISFLGLNG	2620302	CVAC	240	DHAV	DH112	DORNERDO27		DORNERDO27		DORNERDO27	
CHILD S1	0110303	CURTISJN4D	2620604	CVAC	240	DHAV	DH82	DORNERDO27		DORNERDO27		DORNERDO27	
CHILD S2	0110201	CURTISJR	2620502	CVAC	240	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	
CHILD S2	0110202	CURTISO52	2622002	CVAC	240	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	
CHILD S2	0110304	CURTISP40	2622202	CVAC	240	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	
CLARK 1000	2230102	CURTISP40	2622203	CVAC	240	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	
CLARK 12	2230302	CURTISP40	2622206	CVAC	240	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	
CNDAIRCL600	1900302	CURTISROBIN	2620802	CVAC	240	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	
CNDAIRCL600	1900304	CURTISROBIN	2620806	CVAC	30	DHAV	DH87	DORNERDO27		DORNERDO27		DORNERDO27	

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DOUG DC3	3021472	EMB 110	3260124	FRCHLD24	3370520	GLASFLH301	3800339	GRUMAVG1159	3960302		
DOUG DC3	3021474	EMB 120	3260201	FRCHLD24	3370602	GLASFLH301	3800341	GRUMAVG164	3952702		
DOUG DC3	3021478	ENSTRM280	3300510	FRCHLD24	3370608	GLASFLKESTRL	3800343	GRUMAVG164	3952801		
DOUG DC3	3021481	ENSTRMF28	3300404	FRCHLD24	3370614	GLASFLIBELL	3800346	GRUMAVG164	3952802		
DOUG DC4	3021502	ENSTRMF28	3300406	FRCHLD24	3370620	GOLDENCHIEF	3840102	GRUMAVG164	3952803		
DOUG DC4	3021506	ENSTRMF28	3300407	FRCHLD24	3370626	GOODYR813	3870118	GRUMAVG164	3952804		
DOUG DC4	3021510	ENSTRMF28	3300412	FRCHLD24	3370628	GOODYRFG1D	3870512	GRUMAVG164	3960201		
DOUG DC4	3021512	ENSTRMF28	3300430	FRCHLD71	3370802	GOODYRGS20	3870220	GRUMAVG164	3960202		
DOUG DC4	3021516	ENSTRMF28	3300502	FRCHLDC119	3372102	GOODYRGS30	3870139	GRUMAVG164	3960203		
DOUG DC4	3021522	ENSTRMF28	3300505	FRCHLDC119	3372106	GOODYR72	3870218	GRUMAVG164	3960204		
DOUG DC4	3021524	ENSTRMF28	3300550	FRCHLDC82	3372108	GOVT N22	3880102	GRUMAVG164	3979904		
DOUG DC4	3021530	ENTWICPHEBUS	1403014	FRCHLDF27	3372002	GROB 103CAT	1660202	GRUMAVG21	3951202		
DOUG DC4	3021528	ENTWICPHEBUS	3321206	FRCHLDF27	3373002	GROB 109	1660205	GRUMAVG21	3951204		
DOUG DC4	3021534	ENTWICPHEBUS	3321210	FRCHLDF45	3373008	GROB 109	1660205	GRUMAVG21	3951214		
DOUG DC4	3021536	EVNAIR4500	3340106	FRCHLDFC2	3371102	GRTLSK2T1	1660104	GRUMAVG21	3951216		
DOUG DC6	3021702	FARZWKD1AMAT	3550802	FRCHLDFH1100	4361415	GRTLSK2T1	3910101	GRUMAVG89	3951006		
DOUG DC6	3021706	FARZWKD1AMAT	3550806	FRCHLDFH227	3373042	GRTLSK2T1	3910102	GRUMAVJ2F	3950208		
DOUG DC6	3021710	FCWLF44J	3540102	FRCHLDFH227	3373042	GRTLSK2T1	3910104	GRUMAVTBM	3950306		
DOUG DC6	3021712	FLEET 16B	3480502	FRCHLDFH227	3371504	GRTLSK2T1	3910106	GRUMAVTBM	3950308		
DOUG DC7	3021802	FLTCHR24	3530204	FRCHLDFH227	3371506	GRTLSK2T1	3910107	GRUMAVTBM	3950310		
DOUG DC7	3021804	FLTCHRF225	3530102	FRCHLDFH227	3371604	GRTLSK2T1	3910108	GULSTM112	0144701		
DOUG DC7	3021806	FLYGTW2E1HE	3802219	FRCHLDM62	3371606	GRUMANF6F	3950104	GULSTM112	7630302		
DOUG DC8	3021906	FOMOCO4AT	3590102	FRCHLDM62	3371608	GRUMANF6F	3950602	GULSTM112	7630306		
DOUG DC8	3021912	FOMOCO4AT	3590104	FRCHLDM62	3371618	GRUMANF6F	3950614	GULSTM112	7630307		
DOUG DC8	302191D	FOMOCO5AT	3590202	FRCHLDM62	3371620	GRUMANF7F	3950696	GULSTM112	7630314		
DOUG DC8	3021920	FOMOCO5AT	3590204	FRCHLDM62	3371622	GRUMANF7F	3950704	GULSTM112	7630315		
DOUG DC8	302199B	FRANK 90	3680102	FRCHLDM62	3371624	GRUMANF8F	3950801	GULSTM500	0141102		
DOUG DC8	302199F	FRCHLD21	3371302	FRCHLDM62	3371626	GRUMANF9	3950802	GULSTM500	0141106		
DOUG DC9	3022036	FRCHLD22	3370104	FRCHLDM62	3371628	GRUMANF9	3950905	GULSTM500	0141107		
DOUG DC9	3022037	FRCHLD22	3370108	FRCHLDM62	3371630	GRUMANF134	3951000	GULSTM500	0141108		
DOUG DC9	302203K	FRCHLD22	3370110	FRCHLDM62	3371632	GRUMANF134	3951002	GULSTM500	0141108		
DOUG DC9	302206C	FRCHLD22	3370112	FRCHLDM62	3371640	GRUMANF134	3951100	GULSTM500	0141202		
DOUG DC9	302207A	FRCHLD22	3370114	FRCHLDM62	3371640	GRUMANF134	3951102	GULSTM500	0141402		
DOUG DC9	3022081	FRCHLD22	3370116	FRCHLDM62	3374004	GRUMANF134	3951102	GULSTM500	0141404		
DOUG DC9	3022104	FRCHLD24	3370202	FUJI LM1	3374006	GRUMANF134	3951102	GULSTM500	0141406		
DOUG DC9	3022104	FRCHLD24	3370202	FUNK FUNK	3730110	GRUMANF134	3951102	GULSTM500	0141408		
DRIGGSKYLK3	3160502	FRCHLD24	3370204	GALAXYGX7	3720202	GRUMANF134	3951102	GULSTM500	0141408		
DURMOLF46	3200502	FRCHLD24	3370206	GARCIATROJAN	3760520	GRUMANF134	3951102	GULSTM500	0141408		
EAGLE DW	3230203	FRCHLD24	3370208	GEM 205	3760520	GRUMANF134	3951102	GULSTM500	0141408		
EAGLEBAX7	3240107	FRCHLD24	3370212	GENBALAX6	3760520	GRUMANF134	3951102	GULSTM500	0141408		
EAGLEBAX7	3240107	FRCHLD24	3370216	GENBALAX6	3760520	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760102	FRCHLD24	3370220	GENBALAX6	3760520	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760104	FRCHLD24	3370302	GENBALAX6	3760520	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760202	FRCHLD24	3370402	GLASER300	3802509	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760204	FRCHLD24	3370408	GLASER300	3802509	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760206	FRCHLD24	3370414	GLASFL201	3800344	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760207	FRCHLD24	3370502	GLASFL304	3800347	GRUMANF134	3951102	GULSTM500	0141408		
EIRVON20	5760208	FRCHLD24	3370508	GLASFLBS1	3800347	GRUMANF134	3951102	GULSTM500	0141408		
EMAIR MA1	3280103	FRCHLD24	3370514	GLASFLH301	3800335	GRUMANF134	3951102	GULSTM500	0141408		
EMAIR MA1	6070102	FRCHLD24	3370516	GLASFLH301	3800337	GRUMANF134	3951102	GULSTM500	0141408		
EMB 110	3260122	FRCHLD24	3370516	GLASFLH301	3800337	GRUMANF134	3951102	GULSTM500	0141408		
EMB 110	3260124	FRCHLD24	3370520	GLASFLH301	3800339	GRUMANF134	3951102	GULSTM500	0141408		

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
GULSTM690TP	0141720	HELIO H295	4301102	HUGHES369	4470707	JAMISNJ1	4650502	LKHEED10	5261314
GULSTM690TP	0141722	HELIO H295	4301104	HUGHES369	4470708	JAMISNJ2	4651004	LKHEED1049	5262121
GULSTM690TP	3970405	HELIO H391	4300102	HUGHES369	4470718	JBMSTRDGA11	4690302	LKHEED1049	5262131
GULSTM690TP	3970410	HELIO H391	4300106	HUGHES369	4470720	JBMSTRDGA15	4690502	LKHEED1049	5262140
GULSTM690TP	3970411	HELIO H395	4300202	HUGHES369	4470722	JBMSTRDGA15	4690506	LKHEED12A	5261402
GULSTM690TP	3970610	HELIO H395	4300206	HUGHES369	4470728	JBMSTRDGA15	4690516	LKHEED1329	5263102
GULSTM690TP	7630515	HELIO H700	4300400	HUGHES369	4470730	JBMSTRDGA18	4690604	LKHEED1329	5263106
GULSTM690TP	7630516	HELIO H800	4300500	HUGHES369	4470731	JBMSTRDGA8	4690102	LKHEED1329	5263108
GULSTM690TP	7630517	HELIO HST550	4301002	HUGHES369	4470806	KAISERF5	4762002	LKHEED1329	5263125
GULSTM690TP	7630518	HELIO HST550	4301006	HUGHES369	4470805	KAMAN K600	4800702	LKHEED1329	5263108
GULSTM690TP	7630519	HILLERFH1100	3376502	HUGHES369	2800902	KAMAN K600	4800704	LKHEED18	5261624
GULSTMAA1	0630610	HILLERUH12	4360102	HWKSLY80A	2800404	KAMAN K600	4800802	LKHEED18	5261634
GULSTMAA5	0630710	HILLERUH12	4360103	HWKSLYDH104	2800406	KAMAN K600	4800805	LKHEED18	5261640
GULSTMAA5	3960106	HILLERUH12	4360105	HWKSLYDH104	2800412	KAWSKIKV107	4820101	LKHEED18	5261642
GULSTMG1159	3953505	HILLERUH12	4360110	HWKSLYDH104	2800414	KELLETKD1	4850106	LKHEED188	5262604
GULSTMG1159	3953535	HILLERUH12	4360113	HWKSLYDH104	2800417	KINNERB	4940202	LKHEED286	5263802
GULSTMG1159	3970109	HILLERUH12	4360114	HWKSLYDH104	2800418	KINNERB	4940204	LKHEED382	5264130
GULSTMG1159	3980115	HILLERUH12	4360115	HWKSLYDH106	2800308	KINNERB	4940204	LKHEED382	5264140
GULSTMG159	3952202	HILLERUH12	4360116	HWKSLYDH114	2800506	LAIFN10	5090204	LKHEEDP2V	5260110
GULSTMG44	3951502	HILLERUH12	4360117	HWKSLYDH125	1500204	LAIFNBA100	50901FB	LKHEEDP2V	5260112
GULSTMG44	3951508	HILLERUH12	4360118	HWKSLYDH125	4210101	LAIRD LC	5070104	LKHEEDP2V	5269601
GULSTMG73	3951802	HILLERUH12	4360119	HWKSLYDH125	4210112	LAIRD LCB	5070110	LKHEEDP38	5260201
GULSTMGA7	3960401	HILLERUH12	4360120	HWKSLYDH125	4230106	LAISTRPL15	5100108	LKHEEDP38	5260203
H-1	1181409	HILLERUH12	4360121	HWKSLYDH125	4230110	LAISTRPL15	5100202	LKHEEDP38	5260203
H13/HTL	1180806	HILLERUH12	4360122	HWKSLYDH125	4230126	LAISTRPL15	5100203	LKHEEDP38	5260205
H13/HTL	1181007	HILLERUH12	4360124	HWKSLYDH125	4230138	LAISTRPL46	5100101	LKHEEDP38	5260206
H19/45	1181585	HILLERUH12	4360125	HWKSLYDH125	423013M	LAISTRPL49	5100102	LKHEEDP38	5260207
H19/45	8141615	HILLERUH12	4360126	HWKSLYDH125	423013P	LEAR 23	5170102	LKHEEDP38	5260214
H23/HTE	814161E	HILLERUH12	4360128	HWKSLYDH125	4230140	LEAR 24	5170302	LKHEEDP38	5260102
H23/HTE	4360109	HILLERUH12	4360130	HWKSLYDH125	4230158	LEAR 24	5170304	LKHEEDP38	5260106
H23/HTE	4360111	HILLERUH12	4360131	HWKSLYDH125	4230160	LEAR 24	5170306	LKHEEDT33	5260401
H23/HTE	4360123	HILLERUH12	4360132	HWKSLYDH125	1440602	LEAR 24	5170307	LKHEEDT33	5260402
H23/HTE	4362305	HILLERUH12	4360135	HWKSLYDH125	1440502	LEAR 24	5170310	LKHEEDT33	5260406
H23/HTE	4362305	HILLERUH12	4360809	HWKSLYDH125	1440504	LEAR 24	5170311	LKHEEDVEGA1	5260406
H34/55	8141810	HILLERUH12	4362402	HWKSLYDH125	1440506	LEAR 24	5170316	LKHEEDVEGA5	5261202
H34/55	8141813	HILLERUH12	4130402	INDAER166	6960202	LEAR 24	5170317	LKHEEDY03A	5269501
H34/55	8141819	HWKSLYDH125	4670101	INLANDR400	4550502	LEAR 25	5170506	LKINTL402	5263406
H34/55	8141823	HOWARD500	4390102	INLANDS300	4551002	LEAR 25	5170509	LUSCMB1	5350102
H37	8142302	HSPAVNHA112	4380102	INLANDW500	4552002	LEAR 25	5170511	LUSCMB4	5350202
HAMELOHFB320	4071204	HSPAVNHA200	4380115	INTRCP200	5650304	LEAR 25	5170513	LUSCMB8	8190102
HARTMNOW5M	4200102	HUGHES269	4470402	INTRCP200	5650306	LEAR 25	5170514	LUSCMB8	8190104
HAWKINC97	1381603	HUGHES269	4470403	INTRCP200	5650308	LEAR 28	5170528	LUSCMB8	8190106
HEAD AX888	0563777	HUGHES269	4470404	INTRCP200	5650310	LEAR 35	5170600	LUSCMB8	8190108
HEATH CNA40	4250102	HUGHES269	4470502	ISRAELI121	0142002	LEAR 35	5170601	LUSCMB8	8190110
HEATH LNB4	4250202	HUGHES269	4470504	ISRAELI121	0142006	LEAR 35	5170602	LUSCMB8	8190112
HELIO H250	4300302	HUGHES269	4471004	ISRAELI121	0142010	LEAR 35	5170603	LUSCMB8	8190114
HELIO H295	4300802	HUGHES269	4470702	ISRAELI123	4500101	LEAR 55	5170702	LUSCMB8	8190116
HELIO H295	4300803	HUGHES269	4470704	ISRAELI123	4500102	LET L13	1360306	LUSCMB8	8190118
HELIO H295	4301101	HUGHES269	4470706	ISRAELI124	4500103	LKHEED10	5261302	LUSCMB8	8190120
HELIO H295	4301102	HUGHES269	4470707	JAMISNJ1	4650502	LKHEED10	5261314	LUSCMB8	8190122

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LUSCOM8	8190122	MNCUP90	5810107	MTSBSIMU2	5780409	NAMER T6	6400416	NORWST35	6480104
LUSCOM8	8190124	MNCUP90	5810110	MTSBSIMU2	5780410	NAMER T6	6400417	NORWST35	6480108
LUSCOM8	8190126	MNMITEM18	5870102	MTSBSIMU2	5780411	NAMER T6	6400418	NORWST35	6480126
LUSCOM8	8190128	MNMITEM18	5870104	MTSBSIMU2	5780412	NAMER T6	6400419	NORWST40	6480110
LUSCOM8	8190130	MNMITEM18	5870106	MTSBSIMU2	5780413	NAMER T6	6400420	NORWST50	6480114
LUSCOM8	8190132	MNMITEM18	5870108	MTSBSIMU2	5780414	NAMER T6	6400422	NORWST65	6480116
LUSCOM8	8190154	MNSLRMS760	5910102	MTSBSIMU300	5780602	NAMER T6	6400423	NORWST65	6480118
MACCHIAL60	5400106	MNSLRMS760	5910106	MTSBSIMU300	5781300	NAMER T6	6400424	NORWST65	6480122
MACCHIAL60	5400108	MODFD47	1180847	MULTCD16	9230602	NAMER T6	6400426	NORWST65	6480124
MAEL BA42	5430102	MODFD47	1180847	MULTCD16	9230604	NAMER T6	6400430	NORWSTEAGLE	7680120
MARTIN202	5450602	MODFD47	118103H	MULTCD16	9230606	NAMER T6	6400431	OBERNRMG23SL	3801049
MARTIN404	5450702	MODFD47	1181067	MULTCD16	9230608	NAMER T6	6400432	ORLHELH19	8141608
MAULE M4	5460102	MODFD47	1181074	MULTCD16	9230610	NAMER T6	6400434	ORLHELH19	8141609
MAULE M4	5460104	MODFD47	1181306	MULTCD16	9230612	NAMER T6	6400436	ORLHELH19	8141610
MAULE M4	5460105	MODFD47	4360601	MULTCD16	6400702	NAMER T6	6400441	ORLHELH19	8141612
MAULE M4	5460106	MODFD47	4360701	NAMER B25	6400704	NAMER T6	6400442	ORLHELH19	8141614
MAULE M4	5460108	MODFD47	4360702	NAMER B25	6400705	NARDI FN333	6080102	ORLHELH19	8141616
MAULE M4	5460112	MODFD47	4360704	NAMER B25	6400705	NATBAL752	6113310	ORLHELH19	8141618
MAULE M4	5460114	MODFD47	4360801	NAMER B25	6400708	NATBAL752	6113312	ORLHELH19	814161G
MAULE M4	5460128	MODFD47	4360810	NAMER B25	6400710	NATBAL752	6113317	ORLHELH19	814161J
MAULE M4	5460132	MODFD47	4361101	NAMER B25	6400712	NATBAL752	6113320	ORLHELH19	8141812
MAULE M5	5460133	MODFD47	4361301	NAMER B25	6400714	NAVAL N3N	6120202	ORLHELH19	8141818
MAULE M5	5460134	MODFD47	4361501	NAMER B25	6400718	NAVIONNAVION	6150106	OTHEXSMILFST	8140102
MAULE M5	5460135	MOONEYM20	5870202	NAMER F51	6402301	NAVIONNAVION	6150108	OTHEXSMILFST	8140304
MAULE M5	5460204	MOONEYM20	5870204	NAMER F51	6402302	NAVIONNAVION	6150110	OTHEXSMILTURB	1385064
MAULE M6	5460139	MOONEYM20	5870206	NAMER F51	6402303	NAVIONNAVION	6150118	OTHEXSMILTURB	4470904
MAULE M6	5460160	MOONEYM20	5870208	NAMER F51	6402304	NAVIONNAVION	6150132	OTHEXSMILTURB	4470905
MAULE M7	5460170	MOONEYM20	5870210	NAMER F51	6402306	NAVIONNAVION	6150134	OTHEXSMILTURB	4800708
MAULE MX7	5460180	MOONEYM20	5870212	NAMER F51	6402307	NAVIONNAVION	6150136	PARKS PIT	6770102
MAULE MX7	5460185	MOONEYM20	5870214	NAMER F51	6402308	NAVIONNAVION	6150140	PARMNTCABAIR	6750102
MCBEMSLARK95	4331020	MOONEYM20	5870214	NAMER F51	6402309	NAVIONNAVION	6150142	PARTENP66	6780101
MCBEMSLARK95	5160202	MOONEYM20	5870220	NAMER F82	6401522	NAVIONNAVION	6150148	PARTENP68	6780105
MCKINNG21	5550202	MOONEYM20	5870221	NAMER F86	6401714	NAVIONNAVION	6150160	PARTENP68	6780106
MCKINNG21T	5550120	MOONEYM20	5870308	NAMER NA260	6400452	NAVIONNAVION	6150162	PDMILRY1S	5740102
MCLISHFUNKB	5480102	MOONEYM20	5870312	NAMER NA260	6402502	NAVIONNAVION	6150166	PECOCKPJC	4160204
MCLISHFUNKB	5480104	MOONEYM20	5870314	NAMER NA260	6402504	NAVIONNAVION	6150170	PERTH BIRD	6840122
MCLISHFUNKB	5480108	MOONEYM20	5870601	NAMER NA260	6402505	NAVIONNAVION	6150172	PERTH BIRD	6840126
MCLISHFUNKB	5480202	MOONEYM20	5870605	NAMER NA260	6402506	NAVIONNAVION	6150174	PERTH BIRD	6840132
MCLISHFUNKB	5480204	MOONEYM22	5870402	NAMER O47	6402208	NAVIONNAVION	6150178	PESNTH10	6880102
MCLISHFUNKB	5480208	MOONEYM30	5872030	NAMER P64	6402408	NELSONBB1	6200102	PIAGIOP136	6960102
MEYERSMAC145	5650104	MORISY2000	5940102	NAMER T6	1922828	NICBEZ8G	6290202	PIAGIOP136	6960104
MEYERSOTW	5650202	MOTH 60	6000102	NAMER T6	6400402	NITHON YS11	6310406	PIAGIOP136	6960106
MEYERSOTW	5650206	MOTH 60	6000104	NAMER T6	6400404	NOORDNUC64	6330204	PIASEXHUP2	6980320
MEYERSOTW	5650208	MRCHTIF260	8121206	NAMER T6	6400405	NORD 1101	6380108	PICARDA5	7001216
MILLERUT1	5720102	MRCHTIS205	8121206	NAMER T6	6400406	NORD 3202	6380108	PICARDA5	7001218
MITCHLL101	2000102	MTSBSIMU2	5780404	NAMER T6	6400407	NORD SV4	6383006	PIGMANREARWN	7070104
MNCUP110	5810202	MTSBSIMU2	5780405	NAMER T6	6400410	NORD SV4	8470102	PIGMANREARWN	7070302
MNCUP110	5810204	MTSBSIMU2	5780406	NAMER T6	6400412	NORTRPT125	6450104	PIGMANREARWN	7070308
MNCUP90	5810102	MTSBSIMU2	5780407	NAMER T6	6400414	NORTRPT38	6458005	PILATSB4	7090103
MNCUP90	5810104	MTSBSIMU2	5780408	NAMER T6	6400415	NORWST35	6480102	PILATSB4	7090104
MNCUP90	5810107	MTSBSIMU2	5780409	NAMER T6	6400416	NORWST35	6480104	PILATSPC6	3375014

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PILATSPC6	3375014	PIPER J5	7100202	PIPER PA23	7102304	PIPER PA32	7103213	REIMS 150	7530134		
PILATSPC6	7090102	PIPER J5	7100702	PIPER PA23	7102305	PIPER PA32	7103214	REIMS 172	7530136		
PILATSPC6	7090114	PIPER J5	7100706	PIPER PA23	7102306	PIPER PA32	7103215	REIMS 172	7530139		
PILATSPC6	7090122	PIPER J5	7100708	PIPER PA23	7102308	PIPER PA32	7103216	REIMS 172	7530204		
PILATSPC6T	3375011	PIPER J5	7100712	PIPER PA23	7102309	PIPER PA32	7103218	REIMS 172	7530206		
PILATSPC6T	7090202	PIPER L14	7100902	PIPER PA23	7102310	PIPER PA32	7103220	REIMS 172	7530207		
PILATSPC6T	7090210	PIPER PA12	7101202	PIPER PA24	7102402	PIPER PA34	7103405	REIMS 172	7530209		
PILATSPC7	7090401	PIPER PA12	7101204	PIPER PA24	7102403	PIPER PA34	7103406	REIMS 172	7530210		
PINAIRSUPERV	1100102	PIPER PA14	7101402	PIPER PA24	7102404	PIPER PA34	7103420	REIMS 337	7535716		
PIPER 600	7106001	PIPER PA15	7101502	PIPER PA24	7102406	PIPER PA36	7103610	REIMS 337	7535726		
PIPER 600	7106010	PIPER PA16	7101602	PIPER PA24	7102408	PIPER PA36	7103612	REPBICP47	7570405		
PIPER 600	7106012	PIPER PA17	7101702	PIPER PA24	7102409	PIPER PA36	7103620	RHNFUJRW3	7600504		
PIPER 600	7106014	PIPER PA18	7101802	PIPER PA25	7102502	PIPER PA38	7103812	RKWEILL500	7630410		
PIPER 600	7106015	PIPER PA18	7101804	PIPER PA25	7102504	PIPER PA42	7104202	RKWEILL700	7630520		
PIPER 600	7106023	PIPER PA18	7101806	PIPER PA25	7102508	PIPER PA42	7104212	RKWEILLNA265	6402608		
PIPER 600	8360607	PIPER PA18	7101808	PIPER PA28	7102802	PIPER PA42	7104225	RKWEILLNA265	6402612		
PIPER E2	7100302	PIPER PA18	7101809	PIPER PA28	7102803	PIPER PA44	7104402	RKWEILLNA265	6402614		
PIPER F2	7100304	PIPER PA18	7101812	PIPER PA28	7102804	PIPER PA44	7104404	RKWEILLNA265	6402618		
PIPER J2	7100402	PIPER PA18	7101813	PIPER PA28	7102805	PIPER PA46	7104605	RKWEILLNA265	7630101		
PIPER J3	7100501	PIPER PA18	7101814	PIPER PA28	7102806	PIPER T1040	7105101	RKWEILLNA265	7630104		
PIPER J3	7100502	PIPER PA18	7101815	PIPER PA28	7102807	PIPER TG8	7105102	RKWEILLNA265	7630106		
PIPER J3	7100506	PIPER PA18	7101816	PIPER PA28	7102808	PIRTLEROC185	7140107	RKWEILLNA265	7630107		
PIPER J3	7100508	PIPER PA18	7101818	PIPER PA28	7102809	PIRTLEROC185	7140189	RKWEILLNA265	7630108		
PIPER J3	7100510	PIPER PA18	7101820	PIPER PA28	7102810	PITCANPA4	7180102	ROBSINR22	7640102		
PIPER J3	7100511	PIPER PA18	7101822	PIPER PA28	7102811	PITCANPA5	7180202	ROLSCHLS	3801206		
PIPER J3	7100512	PIPER PA18	7101824	PIPER PA28	7102813	PITCANPA6	7180302	ROLSCHLS	3801208		
PIPER J3	7100514	PIPER PA18	7101826	PIPER PA28	7102814	PITCANPA7	7180402	ROLSCHLS	3801211		
PIPER J3	7100516	PIPER PA18	7101828	PIPER PA28	7102815	PITCANPA7	7180406	ROLSCHLS	3801214		
PIPER J3	7100518	PIPER PA18	7101830	PIPER PA28	7102816	POST A	7280102	ROLSCHLS	3801250		
PIPER J3	7100519	PIPER PA18	7101832	PIPER PA28	7102817	PRATT PRG1	7300102	ROLSCHLS	3801260		
PIPER J3	7100520	PIPER PA18	7101834	PIPER PA28	7102818	PRATT PRG1	7300106	ROLSCHLS	7680106		
PIPER J3	7100522	PIPER PA18	7101837	PIPER PA28	7102819	PROPTJ200	0140312	FOOS 129	7680204		
PIPER J3	7100526	PIPER PA18	7101838	PIPER PA28	7102830	PROPTJ200	0140314	FOOS 1298	7680204		
PIPER J3	7100528	PIPER PA18	7101902	PIPER PA30	7103002	PROPTJ400	4560404	ROOS A1	7680102		
PIPER J3	710052T	PIPER PA18	7101904	PIPER PA30	7103902	RAVEN MG1000	7483202	ROOS A1	7680104		
PIPER J3	7100532	PIPER PA20	7102002	PIPER PA31	7103102	RAVEN RX6	7480502	ROOS PT	7680312		
PIPER J3	7100536	PIPER PA20	7102004	PIPER PA31	7103104	RAVEN S40	7480104	ROSE A1	7710102		
PIPER J3	7100542	PIPER PA20	7102006	PIPER PA31	7103105	RAVEN S50	05604XW	RYAN SCW	7830302		
PIPER J3	7100546	PIPER PA20	7102010	PIPER PA31	7103110	RAVEN S50	7480204	RYAN ST3	7830502		
PIPER J3	7100550	PIPER PA20	7102012	PIPER PA31	7103111	RAVEN S55	7480402	RYAN ST3	7830504		
PIPER J3	7100552	PIPER PA22	7102202	PIPER PA31	7103120	RAVEN S57	7485057	RYAN STA	7830402		
PIPER J3	7101102	PIPER PA22	7102204	PIPER PA31T	7103124	RAVEN S60	7480606	RYAN STA	7830404		
PIPER J3	7101104	PIPER PA22	7102206	PIPER PA31T	7103126	RAVEN S60	7480610	RYANARB	7840102		
PIPER J4	7100602	PIPER PA22	7102208	PIPER PA31T	7103127	RAVEN S66	7480612	RYANARB	7840202		
PIPER J4	7100604	PIPER PA22	7102210	PIPER PA31T	7103128	RAVEN S77	7480650	RYANARB	7840204		
PIPER J4	7100605	PIPER PA22	7102212	PIPER PA32	7103206	RAWDONT1	7500102	SAAB SF340	7850100		
PIPER J4	7100606	PIPER PA22	7102214	PIPER PA32	7103207	REIMS 150	7530110	SCBFLG111	3801381		
PIPER J4	7100608	PIPER PA22	7102216	PIPER PA32	7103209	REIMS 150	7530120	SCBFLGBERGFK	3801315		
PIPER J4	7100610	PIPER PA23	7102302	PIPER PA32	7103211	REIMS 150	7530128	SCBFLGSF25	3801325		
PIPER J4	7100614	PIPER PA23	7102303	PIPER PA32	7103212	REIMS 150	7530132	SCBFLGSF27	380135V		
PIPER J5	7100202	PIPER PA23	7102304	PIPER PA32	7103213	REIMS 150	7530134	SCBFLGSF28	380135X		

APPENDIX C

SDR AIRCRAFT GROUP NAME
FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
SCBFLGSF28	380135X	SCWZERSG1	8050153	SKRSKYS58T	8141844	SOCATARALLYE	8400125	STNSONL1	8630114
SCHEMPDISCUS	38019VN	SCWZERSG1	8050502	SKRSKYS61	8141826	SOCATARALLYE	8400131	STNSONL5	8630202
SCHEMPDISCUS	38019VP	SCWZERSG2	8050202	SKRSKYS61	8142101	SOCATATB10	8680696	STNSONL5	8630204
SCHLER13	38015GS	SCWZERSG2	8050206	SKRSKYS61	8142102	SOCATATB20	8680695	STNSONL5	8630206
SCHLERASK14	38015GW	SCWZERSG2	8050210	SKRSKYS61	8142103	SOCATATB20	8680697	STNSONL5	8630210
SCHLERASK21	38015GY	SCWZERSG2	8050602	SKRSKYS61	8142104	SPARTN7W	8430302	STNSONL5	8630212
SCHLERASW12	38015HR	SCWZERSG2	8050604	SKRSKYS61	8142107	SPARTNC2	8430102	STNSONL5	8630214
SCHLERASW15	38015H2	SCWZERSG2	8050608	SKRSKYS61	814210C	SPARTNC3	8430206	STNSONSM2	8630602
SCHLERASW15	38015H2	SCWZERSG2	8050610	SKRSKYS62	8142202	SPARTNC3	8430208	STNSONSM2	8630604
SCHLERASW17	3801507	SCWZERSG2	8050612	SKRSKYS64	8142260	SPARTNC3	8430210	STNSONSM7	8630702
SCHLERASW19	3801505	SCWZERSG2	8050614	SKRSKYS70	8143000	SPHRTHCIRRUS	38019VC	STNSONSM7	8630704
SCHLERASW19	3801508	SCWZERSG2	8051404	SKRSKYS76	8143006	SPHRTHCIRRUS	38019VE	STNSONSM8	8630802
SCHLERASW20	3801503	SCWZERSG2	8051604	SKRSKYS76	8143007	SPHRTHJANUS	3802002	STNSONSR10	8631602
SCHLERASW20	3801506	SCWZERSG2	8051606	SKRSKYS76	8143010	SPHRTHNIMBUS	3801923	STNSONSR10	8631604
SCHLERII	3801581	SCWZERSGM2	8050301	SLINDS100	0140202	SPHRTHNIMBUS	3801925	STNSONSR10	8631608
SCHLERK	3801551	SCWZERTG3A	8050302	SI INDS100	0140208	SPHRTHNIMBUS	3801950	STNSONSR10	8631614
SCHLERK2K7	3801554	SEMCO 30	8070504	SLINDS100	9550102	SPHRTHNIMBUS	38019VD	STNSONSR10	8631616
SCHLERK8	3801559	SEMCO CLINGER	8070802	SLINDS100	9550104	SPHRTHNIMBUS	38019VF	STNSONSR10	8631620
SCHLERK8	3801563	SEMCO MARKV	8071802	SLINDS100	0144306	SPHRTHNIMBUS	38019VG	STNSONSR5	8631102
SCHLERK8	3801567	SEMCO MODELT	8071701	SLINDS100	0144308	SPHRTHNIMBUS	38019VJ	STNSONSR5	8631104
SCHLERK8	38019VK	SEMCO TC4	8071408	SLINDS100	4571008	SPHRTHS	3801933	STNSONSR5	8631108
SCHLERK8	38019VL	SEMCO TC4	8071409	SLNSBYKITE	8320102	SPHRTHS1	3801939	STNSONSR5	8631110
SCHLERKA6	3801525	SIUOX 60	8250102	SLNSBYT45	8320304	SPHRTHSHK	3801945	STNSONSR5	8631112
SCHLERKA6	3801528	SIUOX 90	8250106	SLNSBYT49	8321008	SPHRTHSHK	3801920	STNSONSR6	8631202
SCHLERKA6	3801530	SIREN C30	8270302	SLNSBYT50	8320402	SPHRTHVENTUS	3802050	STNSONSR6	8631204
SCHLERKA6	3801535	SKRSKYS39	8140502	SLNSBYT51	8320602	SPHRTHVENTUS	3802051	STNSONSR7	8631304
SCHLERKA6	3801537	SKRSKYS39	8140504	SLNSBYT53	8321508	SPORT GEOPEN	3802433	STNSONSR7	8631306
SCHLERKA6	3801540	SKRSKYS51	8141102	SLNSBYT59	8321510	SPTPUZRF4D	8451012	STNSONSR8	8631404
SCHLERKA6	3801542	SKRSKYS52	8141306	SMITH 600	1710602	SPTPUZRF5	8451014	STNSONSR8	8631408
SCHLERKA6	3801545	SKRSKYS52	8141308	SMITH 600	1710606	SPTPUZRF5	8451016	STNSONSR8	8631412
SCHZOWMODELB	0560221	SKRSKYS55	8141602	SMITH 600	8360602	STAR CAVALR	8480102	STNSONSR8	8631416
SCUZERSG2	8050207	SKRSKYS55	8141603	SMITH 600	8360604	STAR CAVALR	8480104	STNSONSR9	8631502
SCWZERSG1	3952704	SKRSKYS55	8141604	SMITH 600	8360605	STAR CAVALR	8480106	STNSONSR9	8631504
SCWZERSG1	8050102	SKRSKYS55	8141606	SMITH 600	8360606	STATE F	8521004	STNSONSR9	8631508
SCWZERSG1	8050104	SKRSKYS55	8141800	SMITH 600	8360608	STEROSS25	8100525	STNSONSR9	8631518
SCWZERSG1	8050106	SKRSKYS58	8141801	SNIAS 350	8680801	STEROSSC7	8100512	STNSONSR9	8631526
SCWZERSG1	8050108	SKRSKYS58	8141804	SNIAS 350	8680802	STEROSSD3	8100602	STNSONV77	8631802
SCWZERSG1	8050110	SKRSKYS58	8141806	SNIAS 350	8680803	STEROSSD3	8100606	STNSONV77	8631804
SCWZERSG1	8050112	SKRSKYS58	8141808	SNIAS 350	8680804	STLOUSC2	7920304	STNSONW	8631902
SCWZERSG1	8050114	SKRSKYS58	8141809	SNIAS AS332	8680808	STLOUSYPT15	7920302	STOLACUC1	8640202
SCWZERSG1	8050116	SKRSKYS58	8141811	SNIAS AS332	8680809	STNSON10	8632002	STOLACUC1	9220102
SCWZERSG1	8050118	SKRSKYS58	8141814	SNIAS SA318	9680506	STNSON10	8632004	STOLAMRC3	3080202
SCWZERSG1	8050120	SKRSKYS58	8141815	SNIAS SA318	9680508	STNSON10	8632102	STOLAMRC3	3080204
SCWZERSG1	8050122	SKRSKYS58	8141821	SNIAS SA318	9680511	STNSON10	8632104	STOLAMRC3	3080206
SCWZERSG1	8050124	SKRSKYS58	8141833	SNIAS SA330	9680612	STNSON6000	8630904	STRMAN3	8560202
SCWZERSG1	8050146	SKRSKYS58T	8141803	SNIAS SA341	8680610	STNSONA	8630901	STRMAN3	8560208
SCWZERSG1	8050147	SKRSKYS58T	8141805	SNIAS SE313	8680502	STNSONJR	8630402	STRMAN4	8560302
SCWZERSG1	8050148	SKRSKYS58T	8141807	SOCATAMS880	5910304	STNSONJR	8630404	STRMAN4	8560306
SCWZERSG1	8050149	SKRSKYS58T	8141840	SOCATAMS893	8402838	STNSONJR	8630406	STRMAN6	8560402
SCWZERSG1	8050151	SKRSKYS58T	8141842	SOCATAMS894	8402842	STNSONL1	8630102	SUD GY80	8681006
SCWZERSG1	8050153	SKRSKYS58T	8141844	SOCATARALLYE	8400125	STNSONL1	8630114	SUD SE210	8680206

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SDR AIRCRAFT GROUP NAME
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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
SUD SE210	8680206	TCRAFTBC	9230324	TRYTEK65	0190928	UNIVAR415	0420702	WACO RE	9600902
SUPAC 14	8730402	TCRAFTBC	9230928	TRYTEK65	0190930	UNIVAR415	0420722	WACO RE	9600906
SUPAC 14	8730404	TCRAFTBF	8850326	TRYTEK65	0190932	UNIVAR415	0540102	WACO RE	9600910
SUPAC LA	8730202	TCRAFTBF	8850332	TRYTEKCF	0190202	UNIVAR415	0540104	WACO RPT	9600340
SUPAC LA	8730204	TCRAFTBF	8850336	TRYTEKK	0190402	UNIVAR415	5872014	WACO S3HD	9601102
SUPAC LA	8730206	TCRAFTBF	8850340	TRYTEKK	0190404	UNIVAR415	5872018	WACO U	9600306
SUPAC LA	8730208	TCRAFTBL	8850346	TRYTEKK	0190204	VALENT17	9370100	WACO U	9600404
SUPAC V	8730302	TCRAFTBL	8850350	UNIPRO113	9250302	VARGA 2150	5940202	WACO U	9600405
SUPAC V	8730306	TCRAFTBL	8850356	UNIPRO70	9250202	VARGA 2150	5940204	WACO U	9600508
SUPAC V	8730308	TCRAFTTC6	8850102	UNIPROD145	9250502	VARGA 2150	9350102	WACO U	9600510
SWALOWSWALLOW	8760102	TEAL TSC1A	8880102	UNIVACGC1	9230102	VARGA 2180	9350104	WACO UC	9600662
SWALOWTP	8760202	TEAL TSC1A	8960404	UNIVACGC1	9230104	VARGA 2180	9350105	WACO UC	9600664
SWRNGNSA226	8780122	TEMCO 11A	8890402	UNIVACGC1	9230106	VICKER745	9470404	WACO UKC	9600808
SWRNGNSA226	8780404	TEMCO 11A	8890404	UNIVACGC1	9230108	VIKINGB	9520102	WACO UKC	9600810
SWRNGNSA226	8780405	TEMCO T35	8890601	UNIVACGC1	9230110	VIKINGB	9520104	WACO UKC	9600820
SWRNGNSA226	8780406	TEMCO T35	8890602	UNIVACGC1	9230112	VIZOLAA21	1870101	WACO UKC	9600822
SWRNGNSA227	8780603	TEMCO T11	8890502	UNIVAR108	9230402	VLGTBWSAGITA	0550201	WACO UKS	9600824
SWRNGNSA227	8780610	TH55	4471002	UNIVAR108	9230404	VOUGHTTF4U	2152610	WACO UKS	9600826
SWRNGNSA227	8780620	THUNDRAX5	056040K	UNIVAR108	9230406	VOUGHTTF4U	2152610	WACO UKS	9600830
SWRNGNSA226	8780102	THUNDRAX5	056040M	UNIVAR108	9230408	WACO 9	2152616	WACO UMF	9600410
SWRNGNSA226	8780112	THUNDRAX5	056040N	UNIVAR108	9230412	WACO AGC8	9600102	WACO UMF7	9601302
SZD 41	8821641	THUNDRAX5	056040P	UNIVAR108	9230414	WACO AGC8	9600602	WACO UMF7	9601304
SZD 45	8822002	THUNDRAX5	8970100	UNIVAR108	9230416	WACO ASO	9601202	WACO YK	9600816
SZD 48	8821648	THUNDRAX6	8970102	UNIVAR108	9230418	WACO ATO	9601212	WACO YK	9600818
TCRAFTK21	8850906	THUNDRAX6	8970104	UNIVAR415	0420104	WACO AVN8	9601402	WACO YK	9600832
TCRAFTKD	8850402	THUNDRAX7	8970105	UNIVAR415	0420202	WACO BSO	9601204	WACO YK	9600834
TCRAFTKD	8850404	THUNDRAX7	8970106	UNIVAR415	0420204	WACO CRG	9601001	WACO YK	9600835
TCRAFTKD	8850408	THUNDRAX7	8970107	UNIVAR415	0420302	WACO CSO	9601206	WACO YK	9600838
TCRAFTKD	8850410	THUNDRAX7	8970108	UNIVAR415	0420304	WACO CTO	9601214	WACO YMF	9600412
TCRAFTKD	8850414	THUNDRAX7	8970110	UNIVAR415	0420306	WACO DSO	9601208	WACO YOC	9600622
TCRAFTKD	8850415	THUNDRAX7	8970110	UNIVAR415	0420308	WACO EGC	9600610	WACO YOC	9600624
TCRAFTKD	8850416	THUNDRAX8	8970111	UNIVAR415	0420310	WACO GC7	9600608	WACO YPF	9601602
TCRAFTKD	8850420	THUNDRAX8	8970112	UNIVAR415	0420312	WACO GXE	9600702	WACO YPF	9601604
TCRAFT15A	8850702	THUNDRAX9	8970115	UNIVAR415	0420314	WACO INF	9600416	WACO YPF	9601606
TCRAFT20	8851002	TIMM COLEGT	8980102	UNIVAR415	0420316	WACO JC	9600802	WACO YPF	9601608
TCRAFTA	8850202	TIMM N2T	8980202	UNIVAR415	0420318	WACO JC	9600806	WACO YPF	9601610
TCRAFTBC	8850302	TMP SONNAVION	6150104	UNIVAR415	0420320	WACO JYM	9601504	WACO ZGC	9600609
TCRAFTBC	8850304	TMP SONNAVION	6150112	UNIVAR415	0420322	WACO KNF	9600418	WACO ZGC8	9600604
TCRAFTBC	8850306	TMP SONNAVION	6150114	UNIVAR415	0420324	WACO P	9600302	WESTLD30	9650160
TCRAFTBC	8850308	TMP SONNAVION	6150116	UNIVAR415	0420326	WACO P	9600402	WHITE D25	9670102
TCRAFTBC	8850310	TMP SONNAVION	6150120	UNIVAR415	0420328	WACO Q	9600408	WING D1	9690302
TCRAFTBC	8850314	TMP SONNAVION	6150122	UNIVAR415	0420330	WACO Q	9600504	WINDKR AC7	9720209
TCRAFTBC	8850316	TMP SONNAVION	6150130	UNIVAR415	0420332	WACO Q	9601210	WSK M18	9810102
TCRAFTBC	8850318	TOMCAT	2390302	UNIVAR415	0420334	WACO QC6	9600640	WTHRLY201	9630404
TCRAFTBC	8850320	TRYTEK65	0190406	UNIVAR415	0420336	WACO QC6	9600642	WTHRLY201	9630406
TCRAFTBC	8850322	TRYTEK65	0190712	UNIVAR415	0420338	WACO QC6	9600644	WTHRLY201	9630408
TCRAFTBC	8850323	TRYTEK65	0190716	UNIVAR415	0420402	WACO QC6	9600646	WTHRLY201	9630410
TCRAFTBC	8850324	TRYTEK65	0190920	UNIVAR415	0420406	WACO QC6	9600648	WTHRLY620	9630602
TCRAFTBC	9230916	TRYTEK65	0190922	UNIVAR415	0420502	WACO R	9600304	WTHRLY620	9630604
TCRAFTBC	9230920	TRYTEK65	0190926	UNIVAR415	0420504	WACO R	9600422	ZENITHZ6	9950102
TCRAFTBC	9230924	TRYTEK65	0190928	UNIVAR415	0420702	WACO RE	9600902	ZLIN 526	9970206

APPENDIX D

SDR ENGINE GROUP NAME FAA MANUFACTURER/MODEL CODES

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SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
ALLSN 250B	03003	FRKLN4AC199	27008	LYC	0360	RROYCEDART	54506
ALLSN 250B	03012	FRKLN4AC199	27009	LYC	0435	RROYCEDART	54507
ALLSN 250C	03002	FRKLN4AC199	27010	LYC	0435	RROYCEDART	54509
ALLSN 250C	03011	FRKLN6A4150	27024	LYC	0480	RROYCEDART	54513
ALLSN 250C	03013	FRKLN6A4165	27025	LYC	0480	RROYCEDART	54522
ALLSN 501D	03004	FRKLN6A4200	27027	LYC	0540	RROYCEGIPSY	20005
ALLSN 501D	03005	FRKLN6A8215	27030	LYC	0540	RROYCEGIPSY	20006
ALLSN 501D	03006	FRKLN6AG4	27026	LYC	0540	RROYCEGIPSY	20007
AMES TRS	04501	FRKLN6AV335	27020	LYC	0541	RROYCEGRIFF	54501
AMTR 430	19050	FRKLN6AV335	27040	LYC	0541	RROYCESPEY	54519
AMTR AMTR	99999	FRKLN6AV350	27043	LYC	0720	RROYCESPEY	54523
AMTRCMCCULH	42501	FRKLN6V4	27033	LYC	R680	RROYCEVIPER	54550
ARSRCHTPE331	01502	FRKLN6V6245	27036	LYC	T55	RROYCEVIPER	54551
ARSRCHTSE331	01505	GARRTTATF3	29002	MNASCO4		RROYCEVIPER	54552
BRSDLYGIPSY	20003	GARRTTTFE731	01518	ONAN 18HP	47850	TMECA ARTST2	60030
CFMINTCFM56	13802	GARRTTTPE331	01514	PIGMAN5	37002	TMECA ARTST3	60003
CONT 6285	17038	GE CF6	30018	PORSCH6784	51001	TMECA AST12	60012
CONT 975	17037	GE CF6	30025	PWA JFTD12	52047	TMECA AST14	60014
CONT A40	17001	GE CF700	30010	PWA JT12	52042	TMECA AST18	60020
CONT A50	17002	GE CJ610	30002	PWA JT15	52060	TMECA AST2	60005
CONT A65	17003	GE CJ610	30006	PWA JT15	52112	TMECA AST2T	60006
CONT A75	17005	GE CJ805	30004	PWA JT3C	52036	TMECA AST3T	60007
CONT A80	17006	GE CJ805F	30005	PWA JT3D	52037	TMECA EASTAN	60009
CONT C125	17011	GE CT58	30011	PWA JT4	52037	TMECA MAKILA	60040
CONT C145	17012	GE CT77P	30030	PWA JT8	52044	TMECA MARBOR	60004
CONT C85	17008	GE TC7TS	30029	PWA JT8	52046	TMECA TURMO4	60008
CONT C90	17009	GLADENB5	37501	PWA JT8	52048	WARNER165	64504
CONT E165	17013	GLADENK5	37503	PWA JT8	52049	WARNER185	64505
CONT E185	17014	GLADENR5	37504	PWA JT9	52053	WARNER50	64503
CONT E225	17015	GULF R670	31701	PWA JT9	52050	WRIGHTJ5	67007
CONT O200	17020	JACOBPR755	35006	PWA JT9	52054	WRIGHTOX5	67002
CONT O300	17022	JACOBPR755	35007	PWA PT6	52043	WRIGHTR1820	67020
CONT O346	17033	JACOBPR755	35008	PWA PT6	61501	WRIGHTR3350	67037
CONT O360	17025	JACOBPR755	35003	PWA PT6	61504	WRIGHTR3350	67038
CONT O470	17026	JACOBPR755	35005	PWA PT6	61506	WRIGHTR3350	67040
CONT O520	17032	JACOBPR915	35005	PWA PT6T	52045	WRIGHTR760	67009
CONT O520	17032	LIMBAH1700	38602	PWA PT6T	61502	WRIGHTR760	67011
CONT O526	17030	LYC AL5512	41581	PWA R1340	52016	WRIGHTR975	67012
CONT R670	17016	LYC ALF502	41580	PWA R1690	52001	WRIGHTR975	67015
DHAXXGIPSY	20004	LYC LTP101	41565	PWA R1830	52020		
ENMA GIV	22000	LYC LTS101	41560	PWA R2000	52023		
FCD 6410	26002	LYC O145	41501	PWA R2800	52026		
FCD 6440	26003	LYC O145	41502	PWA R4360	52027		
FRKLN4A235	27011	LYC O145	41503	PWA R985	52006		
FRKLN4AC150	27002	LYC O235	41505	PWA R985	52007		
FRKLN4AC150	27003	LYC O290	41506	PWA R985	52008		
FRKLN4AC150	27004	LYC O320	41508	PWA T34	52055		
FRKLN4AC171	27005	LYC O320	41509	ROTAX 277	55555		
FRKLN4AC176	27006	LYC O340	41510	RROYCEDART	54504		
FRKLN4AC176	27007	LYC O360	41514				

APPENDIX E

COMMON ACRONYMS

ADF	-	Automatic Direction Finder
CG	-	Capability Groups
DME	-	Distance Measuring Equipment
EFIS	-	Electronic Flight Information Systems
FAA	-	Federal Aviation Administration
FAR	-	Federal Aviation Regulations
GA	-	General Aviation
GAAA	-	General Aviation Activity and Avionics
HSI	-	Horizontal Situation Indicators
IFR	-	Instrument Flight Rules
ILS	-	Instrument Landing System
IMC	-	Instrument Meteorological Conditions
MLS	-	Microwave Landing System
MSL	-	Mean Sea Level
NAS	-	National Airspace System
RNAV	-	Area Navigation Equipment
PAR	-	Precision Approach Equipment
SDR	-	Service Difficulty Reporting
SFAR-38	-	Special Federal Aviation Regulation 38
TCA	-	Traffic Control Airport or Tower Controlled Airport

VFR	-	Visual Flight Rules
VHF	-	Very High Frequency
VMC	-	Visual Meteorological Conditions
VOR	-	Very High Frequency Omni-directional Radio Range

GLOSSARY

Active Aircraft--All legally registered civil aircraft which flew one or more hours.

Aerial Application--See Primary Use.

Aerial Observation--See Primary Use.

Air Carriers--The commercial system of air transportation consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

Air Taxi--See Primary Use.

Aircraft Type--A term used in this publication in grouping aircraft by basic configuration-fixed-wing, rotorcraft, glider, dirigible, and balloon.

Altitude Encoding--(Automatic Altitude Reporting)--An aircraft altitude transmitted via the Mode C transponder feature that is visually displayed in 100 foot increments on the ground radar scope having readout capability.

Area Navigation (RNAV)--A method of using navigation instruments that allows pilots flexibility to fly direct routes between waypoints or offset from published or established routes/airways at specified distance and direction.

Automatic Direction Finder (ADF)--An aircraft radio navigation system which senses and indicates the direction to a nondirectional radio beacon ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft.

Automatic Pilots--An aircraft can be controlled about the roll, pitch, and yaw axis by use of an automatic pilot. Information from VOR, ILS, MLS, and other navigation aids can be coupled to the automatic pilot for en route and approach flights.

Business Transportation--See Primary Use.

Commuter Air Carrier--See Primary Use.

Distance Measuring Equipment (DME)--Airborne and ground equipment used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

Executive Transportation--See Primary Use.

General Aviation--That portion of civil aviation which encompasses all facets of aviation except air carriers.

Glide Slope--See Instrument Landing System.

Instructional Flying--See Primary Use.

Instrument Flight Rules (IFR)--Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS)--A precision instrument approach system which normally consists of the following electronic and visual aids:

- o **Localizer**--Provides course guidance to the runway.
- o **Glide Slope**--Provides vertical guidance during approach.
- o **Marker Beacon**--Provides aural and/or visual identification of a specific position along an instrument approach landing.

Localizer--See Instrument Landing System.

Long Range Navigation--A method of navigation that permits navigation over long distances. This is in contrast to the relatively short range navigation provided by the VOR system.

Marker Beacon--See Instrument Landing System.

Microwave Landing System (MLS)--An instrument landing system operating in the microwave spectrum which provides lateral and vertical guidance to aircraft having compatible avionics equipment.

Other--See Primary Use.

Other Work Use--See Primary Use.

Personal Flying--See Primary Use.

Primary Use--The use category in which an aircraft flew the most hours. The eleven use categories are defined below:

- o **Aerial Application**--Agriculture, health, forestry, cloud seeding, firefighting, insect control, etc.
- o **Aerial Observation**--Aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135), etc.
- o **Air Taxi**--FAR Part 135 passenger and cargo operations excluding commuter air carrier.
- o **Business Transportation**--Individual use of an aircraft for business transportation.
- o **Commuter Air Carrier**--Performs, under FAR Part 135, at least five scheduled round trips per week or carries mail.
- o **Executive/Corporate Transportation**--Company flying with a professional crew.
- o **Instructional**--Flying under the supervision of a flight instructor (excludes proficiency flying).
- o **Other**--Experimentation, R&D, testing, demonstrations, government, air shows, air racing, etc.
- o **Other Work Use**--Construction work (not FAR Part 135), helicopter hoist, parachuting, aerial advertising, towing gliders, etc.
- o **Personal**--Flying for personal reasons (excludes business transportation).
- o **Other**--Any other use of an aircraft not included above. (Example: experimentation, R&D, testing, demonstration, government).

Radar Altimeter--Aircraft instrument that makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

Registered Aircraft--Aircraft registered with the Federal Aviation Administration.

RNAV--See Area Navigation.

Transponder--The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Beacon System that automatically receives radio signals from interrogators on the ground and selectively replaces with specific reply pulse-on-pulse group only those interrogations being received on the mode to which it is set to respond. Each aircraft transponder is capable of replying to 4,096 codes as selected by the pilot. Provides the air traffic controller positive location and, in some cases, altitude information.

VFR Flight--Flight conducted in accordance with Visual Flight Rules.

VHF Communications--Provides radio voice communications between aircraft and ground stations, also between aircraft. Very high Frequency (VHF) is limited in angle (line of sight) and usually used for air traffic communications.

VOR--Very high frequency omnidirectional radio range. Used as the basis for navigation in the national Airspace System.

Weather Radar--Provides the flight crew with visual display of weather that could contain turbulence. The system's primary function is to assist in turbulence avoidance, although most airborne radar systems are also capable of terrain mapping.